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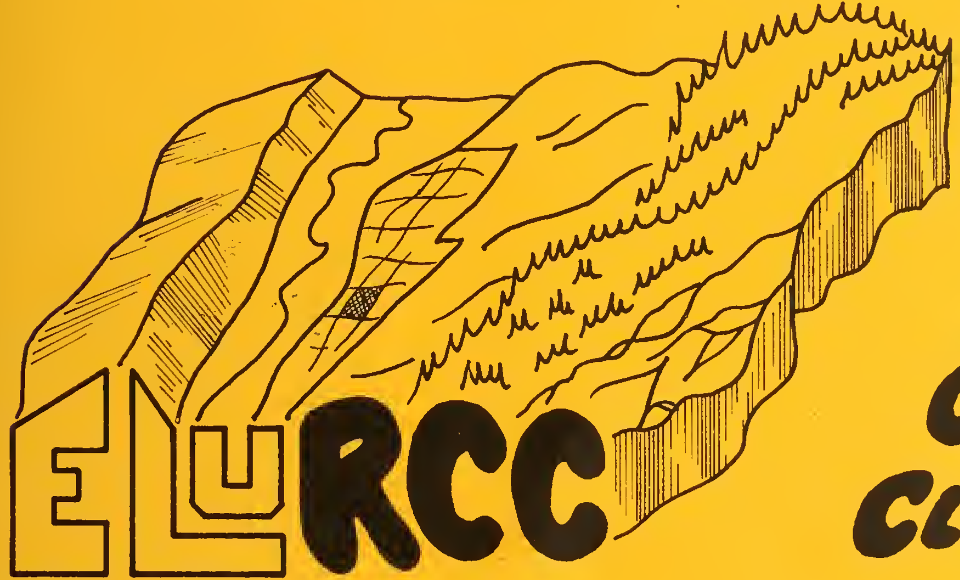

Ecological Land Unit RECREATION CAPABILITY CLASSIFICATION

HANDBOOK AND CLASSIFICATION MANUAL

INCLUDES CONCEPTUAL/PROCEDURAL FRAMEWORK FOR THE ROS SYSTEM

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Preface

After using the capability classification system in Colorado for several years, we have made a number of adaptations, changes, and improvements on the system originally developed in Canada and adapted in part by the Tennessee Valley Authority and others. In addition, more recent developments in the evaluation and assessment of recreation user preferences and behavioral expectations has shed new light on the role which Ecological Land Unit Capability Classification should plan in planning for regional recreation land use allocation.

To help benefit from these previous efforts and to help lay groundwork for continued improvement of our evaluation of the public lands for their recreation potential, we have assembled this first Recreation Capability Classification handbook for Activity Opportunity classification. The classification methodology is set forth within the broader context of the developing Recreation Opportunity Spectrum (ROS) system. I believe it will be a useful tool to increase our efficiency while it promotes a greater consistency of application from Area to Area and from District to District.

We should anticipate revisions of this document from time to time as we continue to implement the ROS and as the state of the art develops. Although the ROS is still being field tested, it is scheduled for Bureau-wide implementation in FY 81. A conceptual framework and brief application section is included in the Appendix to provide a basic working understanding of the ROS, pending development of detailed manual instructions. Generally, broad guidelines are set forth within a flexible framework to guide professional judgement. This permits modification to allow for regional variations in settings, resource attributes, and recreation features.

We are extremely grateful to Environment Canada for their permission to reprint portions of the *Canada Land Inventory--Land Capability Classification for Outdoor Recreation, Report No. 6*, with our adaptations and with appropriate references. That report is the source document for the basic classification scheme in this handbook, though numerous additions, deletions, and amendments have been made. These are summarized in the final paragraph below. On the whole, this evaluation and classification process has been especially helpful in the way of providing an objective and land-based system for the relative prioritization of Activity Opportunities on the public lands administered by BLM in Colorado.

The most significant changes made in our application and understanding of the capability classification system have come about especially in the last few years. One of the major needs has been to rephrase portions of both the methodology and the classification criteria to avoid the connotation that activities or experiences rather than resources and recreation features are being evaluated and classified. In addition, the first section of the handbook contains new guidelines for both the delineation and classification of Ecological Land Units (ELUs), the basic unit of Activity Opportunity classification. New material has also been added on the scope of classification. A section has been added on general landscape descriptions common to the public lands; this was adapted from other variations of the classification system derived by the Province of British Columbia. This was added to provide additional direction for classification of lands which have no special recreation features. Place names have been changed to make the classification system more readable and applicable to those management concerns common to the Bureau of Land Management.

This handbook and classification manual was first issued early in 1979 for the Bureauwide Recreation workshop. Discussions at the workshop identified some ambiguities and omissions which have been clarified in this edition.

August 29, 1979

DALE R. ANDRUS
Colorado State Director

Contents

This handbook and classification manual is arranged in four major sections.

Section I: Introduction

Introductory and explanatory material occupy this section including underlying assumptions and conditions of Ecological Land Unit delineation and classification.

Section II: Classification Guidelines

This sets forth classification criteria for each of 23 Activity Opportunity Subclasses for actual evaluation of the relative capabilities of various resources and recreation features to generate recreation use over time.

Section III: Landscape Descriptions

An expanded table displays various Activity Opportunity Subclasses and accompanying capability Classes associated with common landscape types occurring on BLM-administered public lands in this section. Also included are several black and white photographs illustrating some of the most common landscape descriptions.

Section IV: Appendices

Appendix A:
illustrates portions of completed Activity Opportunity capability classifications supplemented with photographs and overlays.

Appendix B:
sets forth both conceptual and procedural frameworks for the Recreation Opportunity Spectrum (ROS); this incorporates the classification matrix for delineating Setting Opportunity classes, to determine capabilities and the existing situation.

Appendix C:
outlines and highlights some important input data that is used in making Activity Opportunity capacity determinations. This is another aspect of Activity Opportunity capability classification (see also Appendix B).

Appendix D:
contains the bibliography.

— Section I →
— Section II →
— Section III →
— Section IV →

INTRODUCTION, BACKGROUND, SCOPE, AND CONDITIONS OF CLASSIFICATION: —SECTION I

THIS SECTION IS LARGELY INTRODUCTORY IN NATURE AND ESTABLISHES THE UNDERLYING BASIS FOR THIS SYSTEM OF ACTIVITY OPPORTUNITY (AO) IDENTIFICATION. IT INCLUDES UNDERLYING ASSUMPTIONS AND CONDITIONS OF ECOLOGICAL LAND UNIT (ELU) DELINEATION AND CLASSIFICATION. MAJOR COMPONENTS ARE:

- INTRODUCTION
- BASIS FOR DELINEATION OF ELUs
- BASIS FOR CLASSIFICATION OF ELUs
    - -Indicates the Seven Capability Classes
    - -Also Indicates the Twenty Three Subclasses
- SCOPE OF CLASSIFICATION
- PROCEDURES
- MAPPING CONVENTION AND GUIDELINES
- GLOSSARY OF TERMS

Introduction

In terms of recreation supply, Part I of the Recreation Opportunity Spectrum (ROS) concept (see Appendix B) provides a mechanism for classifying the land by Setting Opportunity (SO) classes according to its ability (existing and potential) to provide highly valued states of mind or immediate benefits, i.e. Experience Opportunities (EOs). The primary value of that exercise is that it enables the manager to provide various types of physical, social, and managerial settings to satisfy user's desired and expected behavioral preferences (see part III of the ROS, Appendix B). Because users also exhibit preferences for certain Activity Opportunities (AOs)(see ROS, Part IV, also Appendix B), Part II of the ROS concept serves to provide a second classification system to identify and delineate the existing supply of Activity Opportunities in terms of AO capabilities.

The purpose of this manual is to set forth a methodology for identifying and delineating the supply of Activity Opportunities according to variations in on-site physical, biological, and cultural characteristics. This can be accomplished through use of the Ecological Land Unit Recreation Capability Classification (ELU RCC) system.

Among other things, any given land unit must be capable of generating (i.e. drawing) recreation use over time if it is to have significant recreational value. The key in being able to evaluate this aspect of Activity Opportunity capability is to inventory the various resources and recreation features which collectively define the land's recreational characteristics. All the combined resources and recreation features on any given land unit exhibit aspects of inherent attractability, which include existing useability and longevity or permanency. It naturally follows that as these resources and/or recreation features vary, so will the land's existing potential (i.e. inherent capability) to generate recreation use.

That portion of Activity Opportunity capability classification dealing with capacity concerns itself with the resiliency or durability of the resource over time and assesses its capability to support (i.e. hold) use. Bear in mind that some of the same factors which contribute to or help determine a unit's capability to generate use are also determinants of its capability to support that use over time. For this reason, these separate evaluations or classifications have often been confused or mistakenly combined as part of the same process. A procedural framework for making such capacity determinations is set forth in Appendix B of this handbook and classification manual.

Basis for Delineation of Ecological Land Units (ELUs)

The first step in completing the capability classification is to delineate rather homogenous land units which can be termed "Ecological Land Units" or ELUs in a rather broad sense. Disregarding the more subtle nuances of concern to the ecologist, ELU boundaries are recognized wherever there is a difference in resource capability.

It may be helpful to think of ELUs as the largest units of landscape that can be viewed separately from any point on-the-ground. Mesa-tops, escarpments, rimrock ledges, valley bottoms, floodplains, canyons, hills, wooded areas, parks, and badlands are all examples of ELUs.

Actual ELU delineation is made largely according to variation or differences in topography, vegetation, soils, water, and climate. These differences are further influenced by the presence of specific recreation features such as recreational fisheries, populations of waterfowl or upland game and non-game wildlife, cultural features, interesting or collectable rocks or fossils, etc. Not particularly surprising is the fact that changes often occur in more than one resource attribute and/or recreation feature along a given ELU boundary. Of course, wherever this happens, the difference in recreation capability is more evident and more easily defined.

Detail or specificity in ELU delineation is dictated largely by the degree of landscape variety and the level of detail in recreation supply inventories. Relatively uninteresting terrain which lacks a variety of specific recreation features will naturally be classified with little detail (on public lands administered by BLM, this is more often the case than not). Inadequate inventories, however, will likewise result in Recreation Capability Classification which identifies and delineates very little Activity Opportunity variety.

Basis for Classification of ELUs

Classification of land units and ranking of sub-classes is based on the *relative capability* of each land unit to bring about or provide Activity Opportunities over time. The relative quantity of recreation use generated with a continued output per given area of land is the basis of classification. Other guidelines and assumptions follow:

a. Note: a distinction is to be drawn between capability and suitability evaluation procedures; this evaluation of capability does not include the future potential ability of an ELU to produce Activity Opportunities on the basis of possible alternative managerial inputs (see also Glossary of terms and Appendix B).

b. Uniform market conditions are assumed. This means that any ELU's location relative to population centers does not affect the rating, assuming uniform demand and accessability.

c. Presence or lack of legal access does not influence the ranking--for classification purposes it is assumed to be uniform.

d. Existing physical access is considered in terms of whether or not it has altered on-site capability, and it ought to be reflected in the rating. However, suitability for future access development to, or within, any given ELU is not considered in this evaluation.

e. Man-made structures or features are evaluated and considered for their recreational significance.

f. Although land is classified according to its intrinsic capability, management practices that are applied consistently on a recurring basis are also considered (e.g. fish stocking, etc.) as well as land-altering management practices (e.g. chainings, timber harvesting, etc.).

g. Limiting physical factors such as excessive slope, marshy areas, rocky escarpments, or the intolerant nature of an ELU's resource attributes and/or recreation features *do* influence the capability rating as they have a direct bearing on the inherent useability of a resource or recreation feature.

h. Any ELU has at least some recreation capability based on the collective value of its basic resource attributes, even if no special recreation features are present.

Each ELU is classified into one of seven capability classes, based on its total resource values and recreation features combined:

Class	Capability	Type of Use	Other Characteristics
1	Very High	Intensive	Among the most highly valued resources/features in the state.
2	High	"	
3	Moderately High	"	
4	Moderate	Dispersed	
5	Moderately Low	"	
6	Low	"	Lack natural attractiveness *or* present severe obstacles to their use.
7	Very Low	"	Little capability; may merely provide open space.

The class differentiation between intensive and dispersed types of recreation use is presented here as a guideline that is generally, but *not* always, applicable.

ELUs that classify out on the lower end of the scale inherently can provide only for dispersed use. Unless an adequate physical development area exists, in terms of having suitable soils, slopes, vegetation, and climate, an ELU cannot generate intensive (Classes I-III) use. Where there is not enough space for parking, picnic and/or campground development or for various interpretative developments, a lower class is assigned.

The sequence in which the subclass features are listed below in no way implies any type of hierarchial ordering of importance. No attempt should be made in this classification process to assign a relative importance to these different resources and features separate from the ELUs in which they occur:

Subclass	Description
A	Recreational Fisheries Land units adjacent to waters containing recreationally valuable sport fisheries; afford opportunities for fishing, viewing, study, etc.
B	Beach Shoreland units that are valuable as recreational beaches.
C	River Access Units Land units that provide direct access to and which are adjacent to waters or waterways that have topographic, vegetative, and hydrologic characteristics valuable for canoeing, river rafting, or kayaking.
D	Units on Deeper Water Shoreland units adjacent to water suitable for boating, boat launching, and mooring.
E	Vegetation Land units having vegetation of recreational significance and/or diversity.
F	Waterfalls and Rapids Land units adjacent to waterfalls or rapids.
G	Glaciers or Permanent Snowfields Land units containing glaciers or permanent snowfields.
H	Cultural Resources: Historic and Archeologic Land units containing cultural resources; both historic or archeologic.
J	Collectable Rocks, Minerals, Etc. Land units containing collectable rocks, minerals, or other materials.
K	Support Units Land units containing resources and features that provide access to other shoreland or upland units having significant recreational capabilities, and themselves especially well-suited to various overnight or day-use activities and support facility developments.

L Landforms

Land units containing interesting landform features, other than rock formations, generally void of vegetation.

M Units on Small Surface Waters

Land units containing frequent small ponds or lakes, or units lying adjacent to continuous streams.

N Extensive Winter Upland Units

Rather extensive land units having significant snowcover for a major portion of the winter season, and topographic, vegetative, and climatic conditions conducive to snowmobiling and associated winter recreation activities.

O Upland Wildlife

Land units containing recreationally valuable big game, upland game, or non-game wildlife.

P Cultural Landscapes

Land units exhibiting cultural landscapes such as orchards, pastoral landscapes, farmlands, and ranchlands.

Q Topographic Configuration

Land units predominantly characterized by their topographic configuration, including units of exceptional landscape diversity, which enhance opportunities for engaging in a variety of activities such as hiking, general sightseeing, or outdoor nature studies.

R Rock/Geologic Formations

Land units containing interesting rocks and/or varied geological formations.

S Winter Upland Slopes

Relatively steep-sloping land units having significant snow cover for a major portion of the winter season, and containing physiographic, vegetative and climatic characteristics valuable for downhill skiing and associated activities.

T Thermal Springs

Land units containing thermal springs.

V Vantage Points

Land units situated in topographic settings that provide good viewing opportunities, outstanding panoramas, or superior views.

W Wetland Wildlife

Land units containing recreationally valuable populations of waterfowl or other wetland wildlife.

X Miscellaneous

Land units having other miscellaneous features that are of significant recreation capability, that are not adequately covered under any other subclass. Mapping convention dictates that all features so identified should be footnoted or otherwise labeled for proper identification.

Z Man-made Features

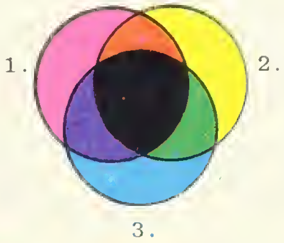
Land units exhibiting permanent man-made non-urban features of recreational significance.

Though these resources and recreation features are portrayed individually as subclasses, as a rule, it is their collective assemblage that gives rise to the overall capability class for any given land unit, rather than any one separate feature. In unusual cases where three or more subclass features all have equally significant capabilities, the overall class of the ELU may be raised, with adequate justification, provided it depicts the relative recreational value of that ELU.

Scope of Classification

Historically, recreation planning efforts have tended to deal largely with the Traditional Recreation Values that involve active recreation pursuits (i.e. see 🟥 below). The objective of the capability classification process is to classify the land's potential to generate recreation use according to the whole spectrum of Activity Opportunities available. This involves not only the traditional "activity-oriented" concepts of recreation, but it addresses the Aesthetic (i.e. 🟨) and Human-Interest aspects (i.e. 🟦) as well. These three aspects of outdoor recreation are actually overlapping components as shown in the following diagram:

COMPONENTS OF THE RECREATION RESOURCE



1. 🟥 = Traditional Recreational Values
Resources/Features that involve the user in purely physical or activity-oriented pursuits.

2. 🟨 = Aesthetic Values
Resources/Features that enlist the senses.

3. 🟦 = Human-Interest Values
Resources/Features that challenge the mind.

In most cases these are actually not independently-occurring attributes on-the-ground rather they occur as a composite or overlap of two (i.e. 🟧, 🟩, or 🟪) and, more commonly, of all three components of the recreation resource (i.e. ⬛). Capability classifications must be made with this fact firmly in mind.

The subclass classification criteria (in the following section of the manual) for each resource and recreation feature are meant to span these three components of the recreation resource. The rating of any subclass resource or feature should always reflect all three values as a composite.

Procedures

Materials required for initial ELU delineation include a topographic mosaic of the planning area (preferably at or near a one inch per mile scale), a set of aerial photos, and resource overlays depicting the existing situation of the physical profile with accompanying narratives addressing soils, vegetation, climate (including snowfall accumulation), and water features. Basic ELUs can be delineated using this resource information, paying particular attention to aerial photo imagery.

Begin by delineating basic *topographic land types* such as mesas, escarpments, rolling hills, canyons, benches, valley bottoms, floodplains, etc. These are most easily delineated along transition zones or breaks in topography. Keep in mind that the only reason for defining separate ELUs is to isolate areas of commonality with respect to their capabilities to generate recreation use. Also remember that differences in Activity Opportunity capability may be in capability classes and/or subclasses.

As basic land types are recognized, further refinements are made according to changes in *vegetation*. As mentioned earlier, in many cases it will become apparent, especially through the use of aerial photos, that breaks in topography actually coincide with changes in vegetation. However, other changes in vegetative composition will serve to further subdivide and delineate ELUs to depict variations in Activity Opportunity capability.

Additional ELUs are recognized according to the type and location of *water features* including both lakes and streams or rivers. *Climatic variables* such as depth and duration of snowfall, topographic aspect, and average daytime temperatures further influence the delineation of ELUs.

The availability of *soil* mapping, either detailed series or the more broadly-defined soil associations, will also help determine how ELUs are delineated. This is most useful as secondary data for refinement of ELUs and for use in the acutal ELU classification itself. This is especially so as soils characteristics and limitations become more of a determining factor in ELUs having the capability to generate intensive types of recreation use, generally classes one through three above (see also Appendix C).

Begin secondary refinement of ELUs by superimposing *specific recreation features* on the physical resource base already used above. The bulk of this information should be collected by the recreation activity for preparation of the existing situation for recreation. However, much of it is available from the physical profile narratives and overlays for other resources and activities, especially including Geology, Wildlife, Fisheries, and Cultural and Visual Resource Management (VRM).

In terms of the importance and/or relevance of various types of inventory data to the capability classification process, second to the need for adequate data on topographic, vegetative, etc. resource attributes addressed above, is the need for definitive and accurate information on the specific recreation features, but especially for wildlife and fisheries populations. The reason these features are so important in the capability classification process, is upland, wetland, and fisheries values are generally all significant adjacent to water features. This is naturally more crucial in mesic than in arid environments.

Each land unit may contain one or more recreation feature (subclass) such as recreational fisheries, big game or upland wildlife, wetland wildlife, collectable minerals, snow or ice features, cultural resources, etc. In many cases, specific recreation features will occupy ELUs already defined; others will occupy only a portion of an area and will require further refinement or delineation of additional ELUs. Again, note that the reason for delineating separate ELUs is to define individual areas having uniform Activity Opportunity capabilities. Therefore, additional ELUs should be drawn only when the recreation features are significant enough to warrant a notable difference in either the class or subclass rating.

Once actual classification begins, it may be necessary to adjust these boundaries, including adding or removing some of them. But this will be minimized as the classifier becomes more familiar with the ELU Recreation Capability Classification system. A general rule of thumb for delineation of land units is to differentiate between areas only when there is a notable difference in resource capability -- either in class and/or subclass. This will require a more than cursory knowledge of the classification criteria before Activity Opportunities can be correctly identified.

Insofar as possible, preferably more than one individual should participate in the actual delineation and rating of land units; it has been recommended that the classifiers represent more than one discipline and should involve at least two individuals.

Mapping Convention and Guidelines

A one-inch-per-mile topographic base map makes an excellent inventory data collection and recording device; recreation features can be easily inventoried and plugged into the capability classification process without having to transpose the data to another map scale.

Appendix A contains mapped portions of two separate planning areas where the RCC was completed on one inch/mi. and one-half inch/mi. base maps. At one-half inch/mi., the classification was completed without a topographic base but with the aid of a slope map. For planning areas having relatively low demand for recreation use and with little potential for resource conflicts, this scale may be adequate. But for other high visibility planning areas, a larger-scale map having an actual topographic base should be used.

ELU boundaries that are based on resource values are normally drawn at logical breaks in topography, vegetation, etc. Care should be exercised to ensure that ELU boundaries are drawn to include the whole area influenced by that particular feature; this also applies to the influence of water features and other related recreation values upon adjacent land units. In many instances this influence extends to the first natural break in topography or vegetation, but it may well require the delineation of another ELU. To maintain consistency in mapping, the minimum dimension for any shoreland, streamside, or special recreation feature-identified ELU should generally be no less than one-eighth inch.

Up to, but *not necessarily*, three subclasses, denoted by upper case letters, are normally arranged vertically, in order of importance or dominance following the numerical classification of the ELU:

e.g.: $4\begin{smallmatrix}V\\R\\O\end{smallmatrix}$, $6\begin{smallmatrix}\\Q\\O\end{smallmatrix}$, $4\begin{smallmatrix}C\\A\\W\end{smallmatrix}$, or $3\begin{smallmatrix}C\\K\\A\end{smallmatrix}$.

Sample Classifications:

$2\begin{smallmatrix}B\\K\\A\end{smallmatrix}$

2 = High capability for outdoor recreation indicating high total annual use based on intensive activities associated with the resource attributes and/or features being evaluated.

B = Primary feature is a beach, the main recreation feature of the unit. Indicates that the water is clean and suitable for swimming and associated activities, the beach is composed of sand or fine gravel and is suitable for sunbathing.

K = Secondary feature, support unit, is the second most important feature of this ELU. Indicates that an area within this unit is suited to intensive use such as for camping, picnicking, interpretation, etc. Usually a portion of the backshore is level, well-drained, and with tree cover.

A = Tertiary feature recreational fisheries, the third most important recreation feature, indicating that the unit fronts on water supporting significant recreational fisheries.

$4\begin{smallmatrix}Q\\O\\P\end{smallmatrix}$

Q = Primary attribute is varied topographic configuration. Usually indicates attractive and diversified terrain with frequent viewpoints providing good opportunities for a variety of extensive activities, such as hiking, riding, etc.

O = Secondary feature is upland wildlife; some opportunities for hunting and/or observation of wildlife in the ELU.

P = Tertiary feature is pastoral setting. All or major portions of the unit are cultivated, adding to the human-interest value and aesthetic diversity of the landscape.

Glossary of Terms

Activity Opportunity(AO):	the opportunity for a person to engage in a specific activity or a cluster, or package, of recreation activities on any given ecological land unit, or combination of ELUs.
AO Capability Class:	an overall numerical rating of the relative capability of an ecological land unit to generate recreation activity over time. Generally speaking, classes one through three are capable of engendering intensive recreation use--classes four through seven, dispersed use.
Ecological Land Unit (ELU):	a parcel of land that has relatively uniform topography, vegetation, soils characteristics, water features, climate, and associated recreation features. It is the basic unit used in the analysis of on-site existing recreation potentials. ELUs are delineated on the basis of logical breaks in the land's character, primarily according to changes in the physical resource, but also according to variations in recreation features. Each separate ELU may have none or several specific recreation features, and each ELU has a uniform capability to generate recreation use over time.
ELU Recreation Capability Classification:	The process for evaluation and classification of the land by logical land units according to its inherent or intrinsic productivity potentials to generate recreation use, based on the *present* state of the resource. It includes that *existing* ability which is the result of past alterations or current management practices. This evaluation portrays the land's ability to provide Activity Opportunities (AOs) by ranking the various resource attributes and recreation features (as subclasses) which make recreation activities possible. The subclass ranking indicates which activities are predominantly (but not exclusively) associated with a given ELU. Note that the subclass features, not the activities, are evaluated and classified.
Recreation Feature:	Any of several natural or cultural values which are not inherently an integral part of the basic topography, vegetation, hydrology, soils, or climate. Recreation features are those specific attributes of an ELU that add significance in terms of their activity-oriented values, their aesthetic values, and/or theri human-interest values.
Resource Attributes:	Any one of several basic and intrinsic elements of the land. In this sense, topography, vegetation, water features, soils, and climate are all basic resource attributes.
AO Subclasses:	An alphabetical letter that denotes recreational significance in terms of specific resource attributes and/or recreation features.
Suitability:	The *potential* ability of a resource to produce various Recreation Opportunities on the basis of the maximum possible outputs for given types and levels of future alternative managerial inputs (see Appendix B for schematic diagrams illustrating the relationship of suitability analyses to the Recreation Opportunity Spectrum. This manual does not deal directly with suitability; it properly follows Inventory and Evaluation and is part of the Synthesis process in developing a resource allocation plan.).

ELU CLASSIFICATION GUIDELINES: —SECTION II

THE FOLLOWING ARE *GENERAL GUIDELINES*, RATHER THAN RIGID RULES, BECAUSE THE OVERALL INTENT OF THE CLASSIFICATION IS TO PROVIDE A BASIS FOR COMPARISON OF LAND UNITS IN TERMS OF THE *RELATIVE* AMOUNT OF RECREATION WHICH MAY BE ENGENDERED AND SUSTAINED. THESE CLASSIFICATION CRITERIA ARE NOT INTENDED TO SERVE AS A SUBSTITUTE FOR THE PLANNER'S PROFESSIONAL JUDGEMENT.

SUBCLASS A--
Recreational Fisheries

Land units adjacent to waters containing recreationally valuable sport fisheries; afford opportunities for fishing, viewing, study, etc.

Characteristics:

Activities associated with this subclass include boating and floatboating, picnicking, camping, viewing and nature study, interpretation, outdoor education, and use associated with water falls and rapids. The predominant activity associated with this subclass is angling or fishing. Capability in this subclass depends on either a natural or managed opportunity to produce and sustain recreationally valuable fish species, or to provide access to spawning grounds for river and stream spawning species. Therefore, the quality of the water (considering pollution), the depth and flow, the bottom conditions, and other limnological factors also influence fishing or angling capability.

Not everyone goes fishing from a river bank. On bodies of water whose capability is primarily for fishing from a boat, the capability of a shoreland unit for fishing must be related to its suitability as a base for boating, canoeing, or rafting. Most of the factors affecting boating and/or floatboating will apply.

Capability for fishing on streams and small rivers is determined by normal sport fish populations (influenced strongly by limnological factors), by suitability of shore conditions for fishing from shore, and by accessibility along the stream course. In general, what is important is consideration of the relative opportunity to catch fish, and usually not some of the more esoteric managerial and socio-political considerations that are important to the fisheries biologist (such as rare and endangered species, etc.). However, care should be exercised to ensure that the human-interest values exhibited by these special characteristics of the fisheries are also considered in this Subclass. Ranking is influenced, to some degree, by the aesthetic quality (esp. VRM Scenic Quality) for the streamside environment.

Classification Criteria*:

As a *dominant* feature:

Although the A subclass is often associated with other recreational features, it may be dominant in land units ranking Classes 2 to 7. Where the rating is high, use capability must be intensive in relation to the land base.

Class 2 - A land unit bordering a recreational fishery with complementary features.

Class 3 - Land units offering outstanding fishing opportunities.

Class 4 - Land units bordering excellent fishing streams or with good capability for access by boat to adjoining excellent fishing waters. May include streams where fish populations are supplemented by a "high" rate of fish stocking or plantings.

Class 5 - This class will normally indicate moderate to high capability for stream fishing, or, in shoreland units lacking more dominant features, access by boat to water with moderate to good fisheries. Includes streams supplemented by "moderate" fish plantings.

Class 6 - Low to moderate capability for recreational fisheries. Includes streams supplemented by "limited" fish plantings.

Class 7 - Low capability for fisheries, in a relatively unattractive setting.

As a *subordinate* feature:

Recreational fisheries may be a subordinate feature of a shoreland unit ranking from 1 to 6. In the former, it may be subordinate to such features as B, C, or D.

Recreational fisheries on this portion of the Upper Arkansas River rank high in terms of their inherent capability to attract and sustain fishing use and associated activities. This unit ranks 3 AKC.

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* As noted in the preface, these classification criteria have been adapted from the *Canada Land Inventory--Land Capability Classification for Outdoor Recreation, Report No. 6*. Portions are reprinted by permission of Environment Canada (see Bibliography also).

Further downstream on the Arkansas River, water temperatures are higher, and the disturbance factor from both an adjacent highway and railroad has altered the natural limnological conditions of the river. This ELU containing an undeveloped overnight use area ranks 4 AKC.

Fisheries capabilities need to be classified considering regular fish plantings and other perennial man-induced habitat modifications. Here stream gabions have been placed at intervals along Texas Creek to enhance marginal fisheries through stream aeration.

Generally warm water fisheries occur in this section of Little Yampa Canyon. Although streamflow characteristics for this unit are not especially conducive to high recreation capabilities, a combination of factors, including good wetland and upland wildlife viewing opportunities, an especially scenic but open landscape, pastoral/agricultural landscapes, and opportunities for primitive camping, result in a 4 CAW rating.

Fisheries capabilities on this segment of the Smith Fork are moderately high. Note the shading provided by riparian vegetation. Raptor sightings are common in these rimrock ledges. This unit would rank 3 AEO.

SUBCLASS B-- Beach

Shoreland units that are valuable as recreational beaches.

Characteristics:

Activities associated with this Subclass include swimming, sunbathing, wading, camping, picnicking, walking, unorganized games, gathering and collecting, viewing, recording, interpretation, outdoor education, raft/canoe and boat launching and landing, and water skiing. A beach is a part of the shoreland adjacent to and extending into a body of water or a river and consists of level to moderately sloping deposits of granular material ranging from fine sand to firm till, pebbles and cobbles. Bedrock may also be included.

Beaches may possibly be vulnerable to industrial, agricultural, or rangeland pollution and may change in size and usefulness through short or long cycle fluctuations in water levels or through these or natural influences such as storms and flooding.

Beaches are used for a wide range of activities. Swimming and sunbathing are dependent primarily on temperatures and the flow of water and air. Provided that these are above minimum comfort requirements, the usefulness of beaches is generally increased by their length, the size of the body of water (for boating and associated activities), the variety of water conditions (wading to deep-water swimming), the amount and location of usable backshore, and the contrast of water, rock, and vegetation (viewing and aesthetics).

Classification Criteria:

Beaches are capable of engendering and sustaining intensive use and are important recreational features. In general, warm water beaches (esp. for swimming) are classified 1 to 4, and cold water beaches (esp. for sunbathing and other uses except swimming) are classified 3 to 5. An otherwise exceptional beach with limited swimming capability on account of cool water temperatures may rank Class 2.

As a *dominant* feature:

Class 1 - A Class 1 beach should have the following:

(a) Lake Size - situated on a water body which is about 6 square miles in area or about 10 miles long.

(b) Water Quality - the quality of the water (i.e. "comfortable" temperature during season of peak use, clarity, and freedom from hazards and aquatic nuisances) permits intensive use for swimming.

(c) Composition, Area, and Configuration - the wet beach gradient ranges from 2 to 5%; material is composed of clean, fine-grained materials ranging from fine sands to pea-sized pebbles (i.e. it must be comfortable for naked feet to walk and play on). There should be 1,000 feet of beach within a ¼ mile length of shoreland, approximately.

(d) Backshore - 25 acres of generally level to gently sloping backshore with facilities (e.g. access roads, car parking, game areas, sanitary facilities, picnic areas, campgrounds, etc.) within 1,000 ft. of the beach. There should be good soils with no restrictions on development, largely free of rocks and boulders, and with good vegetative cover.

Lake size and water quality are especially important, although some variation is permissible for beach and backshore. For example, there may be occasional cobbles or boulders on the beach or backshore; the beach may be divided by a rocky outcrop or there may be an accumulation of driftwood on the beach. There may be variable slopes in the backshore which offer approximately 25 acres and relatively small areas with steeper gradients in the wet portion of the beach, but no hazardous slopes.

Class 2 - Same as for Class 1 except:

(a) the minimum usable beach is 300 feet.

(b) beach materials may include fine sand pea-sized gravel, pebbles or firm till.

(c) the development area must be 15 acres.

(d) the body of water must be at least one square mile in area, or two miles long.

Classes 3-5 - The table of limitations offers general guidelines for the downgrading of beaches due either to specific limitations or to the cumulative effect of a number of limitations. It should be noted that a Class 2 beach can be as outlined above, or it can be a "Class 1 type" beach with one or more limitations (to the value of 2).

TABLE OF LIMITATIONS--General Guidelines Affecting Beach Capabilities

Factor	Degree of Limitation: Slight — Moderate — Severe
Vegetation: type & qty.	← Moderate Weed Patches — Extensive Weeds →
Water Quality	← Murky Water (no pollution) — Aquatic Nuisances (no health hazard) — Pollution (degree of limitation depends on type and amount present)
Water Temp.	← Cool Water (limits swimming) — Cold Water — Very Cold Water (precludes use)
Miscellaneous	← Beach Exposure to Limiting Factors → (limitation depends on type and amount present)
Hazards	← Dangerous Slopes , Currents, or Undertows → (limitation depends on type and amount present)
Gradients	<1% <10% <12% <15% ▶ (>15% not classifiable as a beach) →
Materials	← Cobbles → Pebbles over Pea-size, Firm Till — Gravel — Smooth Bed Rock — Rough Bed Rock — Sharp Unsorted Rocks
Development Area	Numerous Boulders — Soil Cover Only 50% of Reqd. Area — Extensive Rockiness — Boulder Pavement ← Minimal Developed Area Available →
Access Problems	Slight — Moderate — Severe — Very Severe

Generally, shoreland units on the public lands in Colorado have no outstanding capabilities to support beach-related activities, lacking one or more desirable and/or essential characteristics. This unit on the lower Colorado River has access limitations in the form of steep slopes and would either rank Class 4 or as a subordinate feature to another Subclass, such as C.

SUBCLASS C-- River Access Units

Land units that provide direct access to and which are adjacent to waters or waterways that have topographic, vegetative, and hydrologic characteristics valuable for canoeing, river rafting, or kayaking.

Characteristics:

Activities associated with this subclass include picnicking, camping, fishing, scenic viewing, wildlife hunting and viewing, interpretation, outdoor education, gathering and collecting, and recording. The waterway must be of sufficient length and average spring and/or summer flow to enable its use for rafting, kayaking, or canoeing. Water quality is important because this feature is often associated with body-contact water sports. Variations in the stream channel, i.e. in width, current, gradient, and direction, are positive attributes, given reasonable navigability or portaging capability. Variations in shore and backshore, tree cover, profiles and materials are desirable, and scenic terrain is an asset (see VRM Scenic Quality). Capability to support fisheries and wildlife is also desirable.

The C symbol presents obvious mapping problems. The capability must be related to land units providing access, although the activity occurs on a waterway that will normally extend well beyond any given land unit boundary. The C symbol may be applied to all units fronting on the waterway, given their natural capability to provide access to the waterway. The omission of the C from any unit on a waterway in close proximity which has bloatboating capability will not imply a change in the capability of the stream itself. C may also occur in close association with Subclass F.

Classification Criteria:

Floatboating is normally a highly dispersed activity. Therefore, any land unit fronting on or containing a portion of a waterway will generally not rank highly due to this feature alone.

As a *dominant* feature:

Class 3 - This Class is possible in exceptional circumstances on shoreland units having gravelly, stable, and well-drained soils that are exceptionally well-suited as raft launching/landing sites. This Class may also front short or recurring stretches of Class III or Class IV rapids (International Scale) having capabilities for only rafts and kayaks.

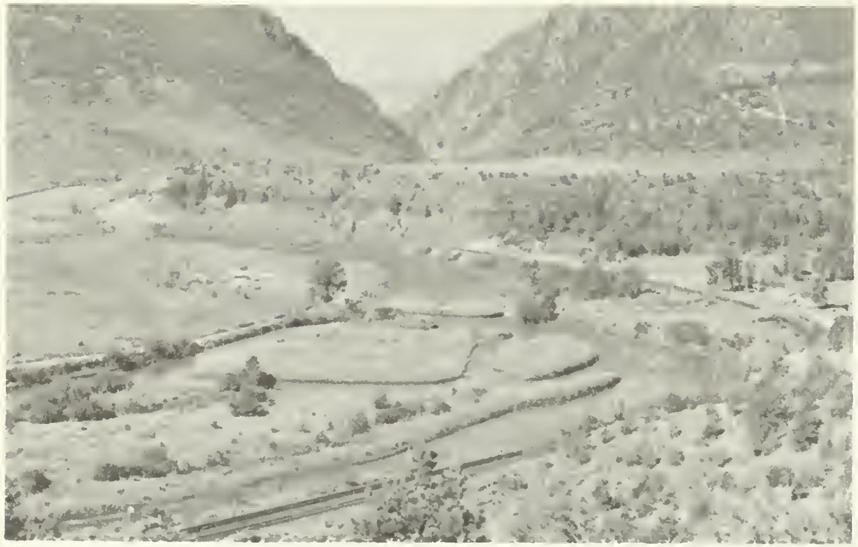
Class 4 - This class is possible in very special circumstances on a long unit which fronts a stretch of water with outstanding capability for fast or whitewater rafting, kayaking, or canoeing, including Class II or Class III rapids, and with complementary features suited to associated activities.

Class 5 - A waterway with very good to moderate capability for river running in most respects and without any serious limitations. Includes mostly Class I rapids. A minimum waterway length of 10 miles is suggested. Capability for associated dispersed activities may be complementary. A full season of adequate water flow is desirable but not essential.

Class 6 - This Class indicates moderate to poor capability for river running. May be serious limitations in the form of unstable soils or lack of developable area. This class may also front Class V or Class VII rapids with serious obstacles to the floatboater.

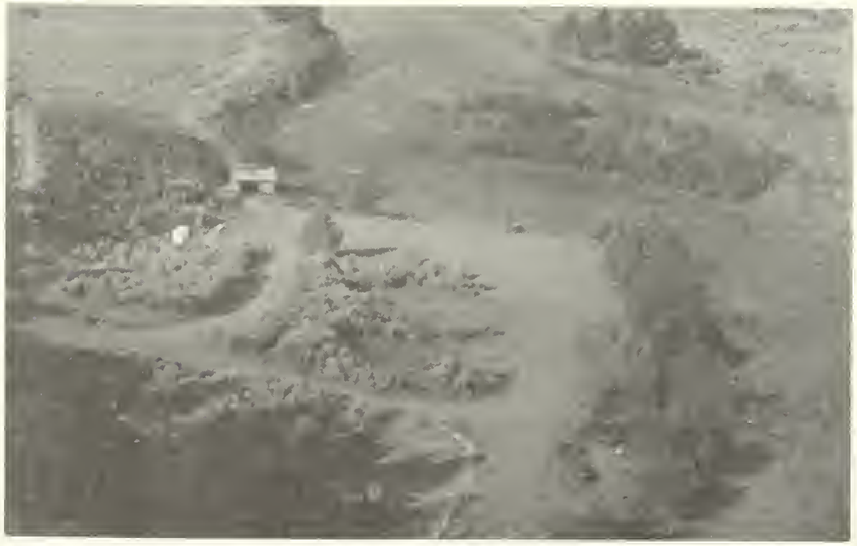
Land units providing access to this stream rank 4 C with the river flow characteristics shown here. Depending on the presence of complementary features and resource attributes, these units could rank higher, especially if normal flows are greater.

This unit along the Dolores River near the Bradfield Ranch is used for boat launching and illustrates the importance of physical access to this shoreland unit.

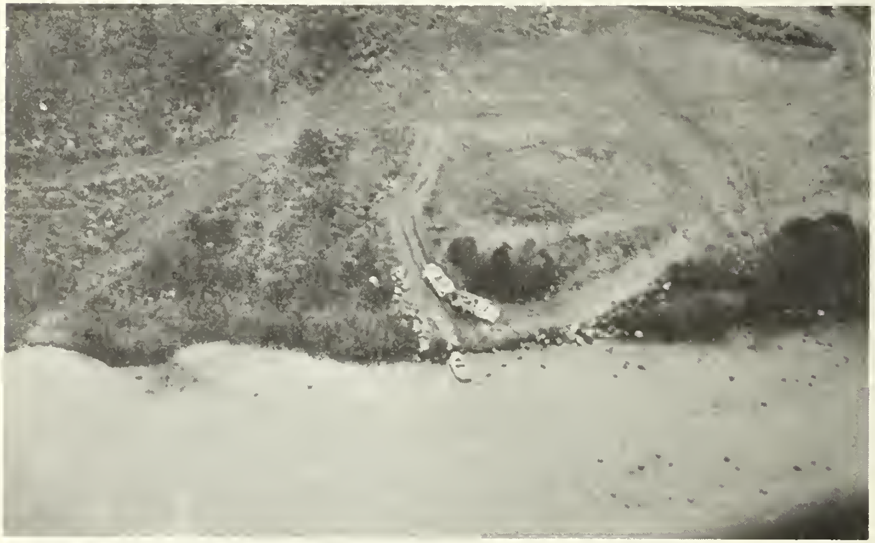


Complementary features and resource attributes are important determinants in the ranking of river access units. The recreational capability of this stream is influenced by its proximity to adjacent ELUs ranking 5 RQ (see Red Canyon in photo), 4 QH, and 4 KWA (in foreground).

Especially significant limitations on the size of this unit would limit its capability to Class 5. most likely Subclass C would occur as a subordinate feature in this ELU.



Significant access limitations, in the form of steep slopes, and a quite small access unit itself limit the capabilities of this site. It likely would rank 3 or 4 KCE. The Pumphouse is the major launching site on the Upper Colorado River.



This take-out site for river runners at State Bridge appears to lack the capability to sustain the intensity of use it receives. The limiting factors appear to be slope and lack of sufficient area for this use. Note evidence of erosion in the lower right-hand portion of the photo and the denuded nature of the site in general.

The extremely rugged Cross Mountain Canyon has been successfully negotiated by raft only recently. Severely limiting factors include a lack of adjacent river access units, heavy rockiness in the stream channel, and the presence of falls within the canyon. Adjacent ELUs would not rank Subclass C, either within or outside the mouth of the canyon, for these reasons.

As a *subordinate* feature:

River running may be a subordinate feature of a unit of any rank, but it is likely to appear as a subordinate feature in Classes 4, 5, or 6.

SUBCLASS D--
Units on Deeper Water

Shoreland units adjacent to water suitable for boating, boat launching, and mooring.

Characteristics:

A variety of activities associated with this subclass include camping, picnicking, swimming, fishing, and any other shoreland, and perhaps upland, activities also. This symbol may be used to indicate a shoreline condition of moderately rapid drop-off from the water's edge which permits boat launching, mooring, and possibly beaching as well. Areas providing launching opportunities are focal points for boating, particularly if the backshore contains support facilities developments and road access.

D may be used as a subordinate to B to indicate a desirable variety of shoreline conditions within the unit suited to swimming and boat mooring or beaching.

A shoreland unit lacking reasonable capability for overland access to the shore may have capability for boating if it is convenient for boat beaching, landing, or mooring. Availability of backshore suited to use in associated activities and accessible by boat only will complement boat landing and launching capability.

Classification Criteria:

Boating is normally a fairly dispersed type of activity, although several associated activities may be somewhat intensive. Also boat launching and beaching areas may have a tendency to be quite intensively used. Generally, land units fronting on shoreland units adjacent to deeper water that are characteristic of this Subclass will not rank consistently high for this factor. However, where a shoreland unit is highly suited to intensive use, such as boating headquarters for launching and mooring, and is relatively alone in this respect on a waterway or shoreland unit well-suited otherwise to family boating, very intensive use of that unit could be generated and sustained. There are all degrees of this capability. For example, D could be a dominant feature of units ranking from 1 to 6. Normally a shoreland unit well-suited to boating and associated activities will have high capability with respect to other features such as a beach, overnight use areas, and perhaps fisheries. Only when boating is the obvious dominant use, along with various associated activities, has the D symbol been used in a dominant position.

Class 1 - An extreme instance of the condition described above may warrant Class 1 ranking. The water body or adjacent water area is excellent for boating, launching, mooring, and associated recreation activities. The land unit provides an ideal natural range of boating, launching, beaching, and mooring capabilities on a relatively large scale, as well as good natural capability for overland vehicle access, and extensive backshore with complete support facility development. The area is unique on a lake, or outstanding within a considerable distance, if on a rather large lake.

Class 2 - A shoreland unit ideally-suited to boating, launching, beaching and mooring, and associated activities, with an area having support facilities and given access capabilities; adjacent to a water feature having minor limitations for the unit's associated activities, or with fairly frequent comparable sites. May include a shoreland unit having minor on-site limitations, but adjacent to a unique site on a highly-valued water feature.

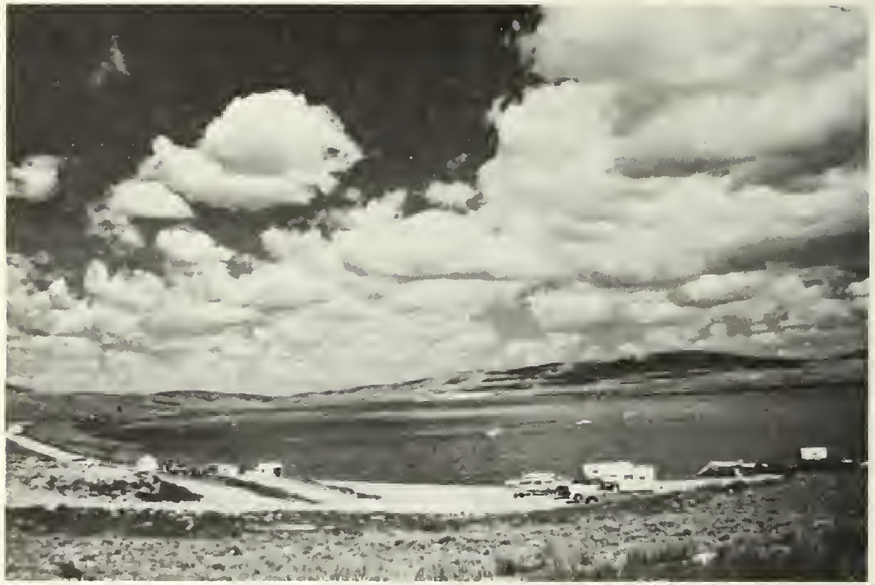
Class 3 - A shoreland unit with particular capability for use as a focal point for boating and associated activities, but in which either the site, the backshore, the shore, or the water feature itself, have moderate limitations.

Class 4 - A shoreland unit adjacent to a lake or waterway suited to boating activities which provides access between land and water for boating activity and associated recreation use at fairly frequent intervals, but which lacks individual locations or sites with capability for more intensive use.

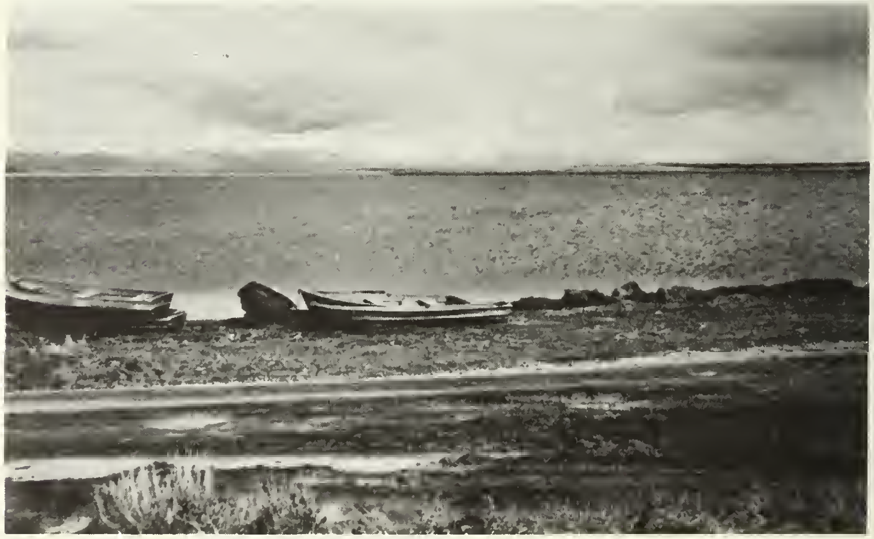
Class 5 - Shorelands fronting water with boating and associated activity capability, but with only occasional sites having moderately low capabilities for more intensive use.

Class 6 - Shoreland units fronting water with boating capability, but with very limited capability at infrequent sites for access to the water feature.

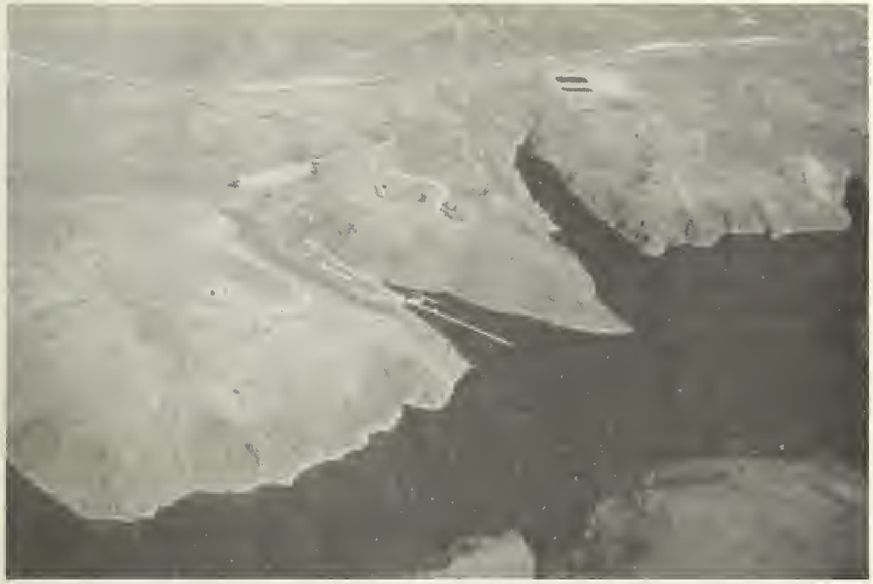
Shorelands classified as 5 or 6 will obviously have very limited or minimal capability for recreational activity, other than as a possible stopping place (with moderate to severe limitations) for boating parties.



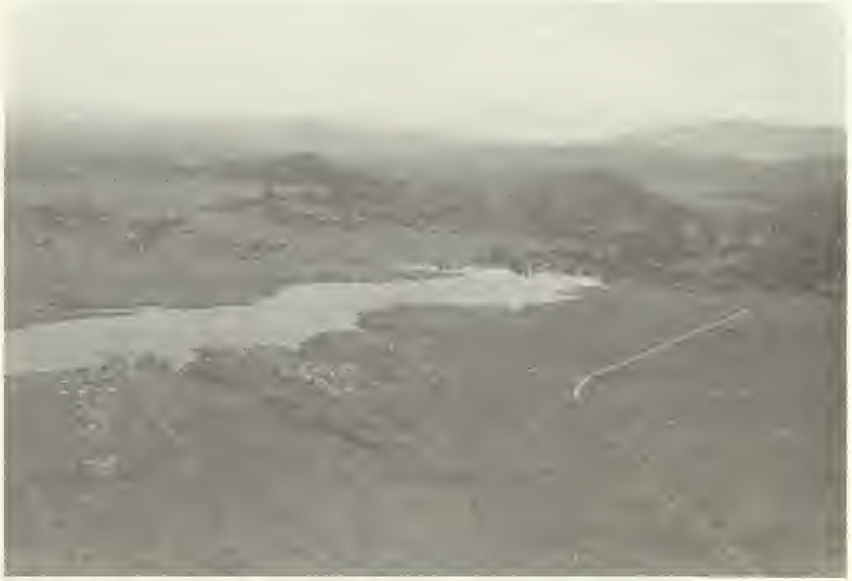
Gradual slopes down to the water's edge and elevated, well-drained soils indicate a good capability for boating here at Lake John in North Park. This unit has a moderate capability to generate recreation use and classifies out as 4 ADB.



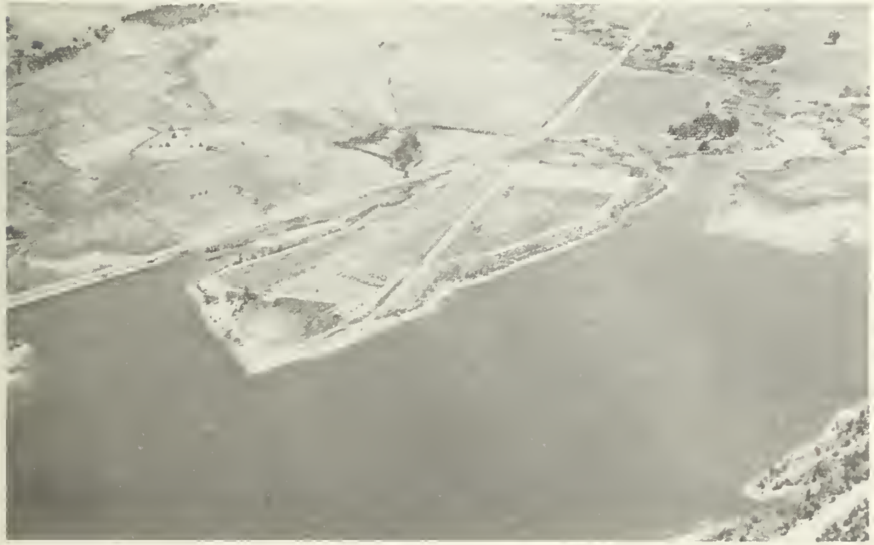
This shoreland unit appears to have a lesser capability to generate use due to the nature of it's soils. Note the standing water in the lower areas along this access route.



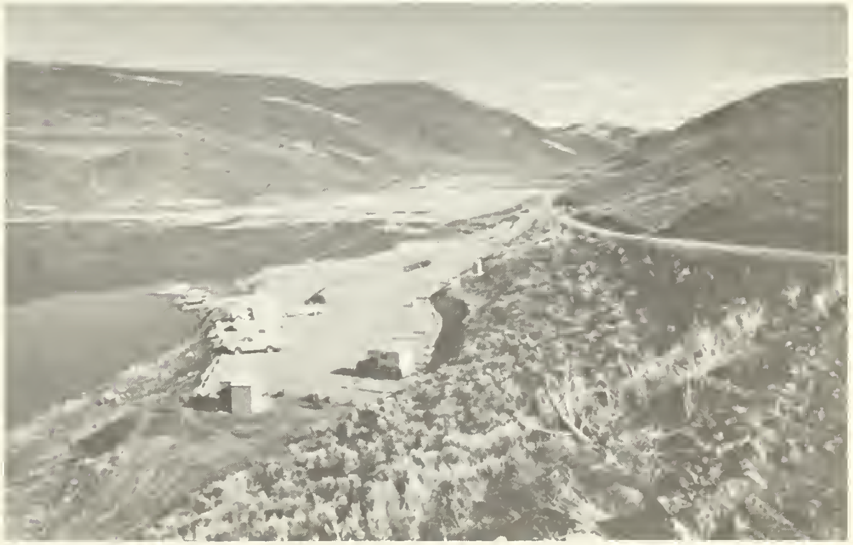
This shoreland unit at Blue Mesa Reservoir is topographically confined to a linear configuration, but appears to have an adequate area of support development on the mesa-top above and adjacent to it. This unit would rank 3 DAK.



An especially scenic setting (Sangre deCristos to the left of this photo), a dispersed stand of ponderosa pine, and suitable soils all combine to rank this area 3 KDA. Fisheries are limited, but good boating opportunities are offered from these shoreline units.



Gently-sloping and elevated shoreland units at Crawford Reservoir contribute to it's capability for deep-water boating.



Note how steep slopes at Lake Avery near Meeker limit the capability of these shoreland units to generate recreation use associated with these deeper waters; extensive construction work for site development was necessary to provide both an access road and specific recreation facilities.

SUBCLASS E--
Vegetation

Land units having vegetation of recreational significance and/or diversity.

Characteristics:

Interesting vegetation significant to recreation includes various forms of plant life ranging from grasses to trees. Generally unless the vegetation is of exceptional attractiveness, it will not affect the capability class; but in most cases, it will affect the subclass denotation for the land unit. Class will tend to be determined by the presence of other features. This feature symbol is *most commonly* used to describe a positive condition of the land unit rather than as an indication of opportunity for specific activities. Associated activities include general viewing, walking, hiking, interpretation, and outdoor education.

Classification Criteria:

As a *dominant* feature:

Class 2 - An isolated and mature stand of Douglas fir, ponderosa pine, or quaking aspen, in a scenic but otherwise generally arid landscape, may be sufficiently tolerant to use and sufficiently unique and attractive to rank Class 2. However, in most cases a unique forest stand would not rank above Class 3.

Class 3 - An alpine meadow in a scenic setting lending itself to moderately intensive interpretation and viewing use may rank Class 3. It will normally not rank above Class 4.

Class 4 - A healthy stand of large trees in a majestic or awesome setting, or a stand of particularly attractive species (e.g. quaking aspen) in park-like distribution, may be the dominant feature of a Class 4 unit.

Classes 5-6 - Tree cover for shelter, or in park-like configuration, lacking the recreational capability to rank higher, may rate Class 5. More commonplace cover will normally warrant Class 6, if it is a dominant feature.

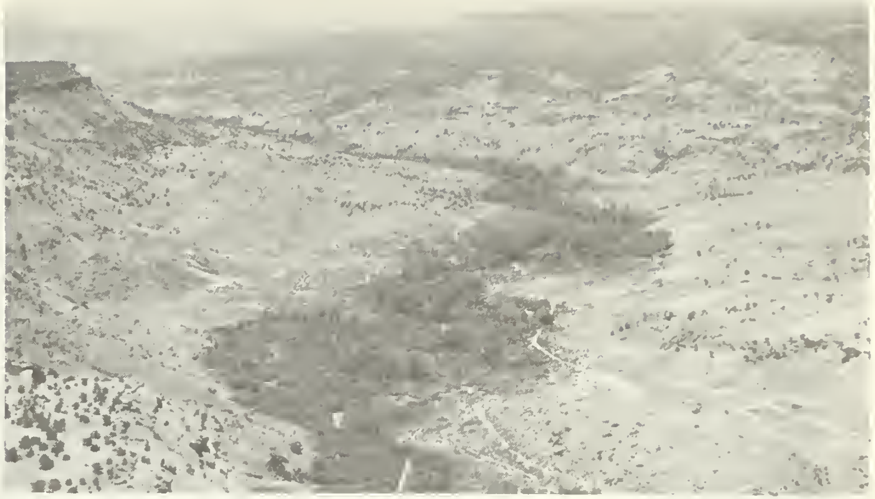
As a *subordinate* feature:

The E symbol may be used with any class in a subordinate position. In *this* position it is used *most commonly* to differentiate between open treeless areas and ELUs having woodland or forest species; in this regard it is also used to indicate a positive condition of recreation capability.

This varied combination of Douglas-fir, quaking aspen, and scrub oak at the top of the Roan Plateau provides moderate to moderately high capabilities for recreation use. Depending on this ELU's association with other resource attributes or features, the area may rank either Class 3 or 4.

This varied landscape lies adjacent to Colorado 13-789 north of Rifle. This combination of diverse terrain supports frequent viewing opportunities associated with park-like stands of aspen, Douglas-fir, and scrub oak, and good wildlife viewing opportunities. May likely rate 4 QEO.

The close association of these spruce-fir species with the sand dunes at North Sand Dunes Natural Area in North Park illustrates the key role that the E Subclass plays in enhancing visual aesthetics and recreation capability.



The E symbol is often used to indicate a positive condition of recreation capability as here in Dry Creek Basin near Montrose. Other associated features and attributes may also occur with the E Subclass.

Potholes occurring in ephemeral drainages such as the Miller Creek area in Skull Creek Basin produce specialized niches such as for the cattails illustrated in this photo. In this otherwise arid environment, such water features and associated vegetation are significant and are reflected in the use of the E and M symbols.

Windswept or arid landscapes on the public lands occasionally contain especially attractive weathered old trees and stumps such as these. These are significant recreational features and are reflected in the Subclass denotation as appropriate. Note that the relative scarcity of this feature is also a consideration in its use.

SUBCLASS F -- Waterfalls and Rapids

Land units adjacent to waterfalls or rapids.

Characteristics:

This feature's ranking depends largely on the configuration of the stream, water volume, and the scenic setting. Adequate area on land units adjacent to these features for viewpoints, walks, and supporting facilities (e.g. car parking, picnic grounds, and possible camping) is necessary in higher class units.

Classification Criteria:

As a *dominant* feature:

Class 1 - A waterfall having a large volume of water, and located in a very scenic setting.

Class 2 - Waterfalls or rapids which have a medium to large volume of water, with a scenic setting (e.g. Fish Creek Falls, Steamboat Springs).

Class 3 - Waterfalls or rapids which may have a lesser volume of water but which have a scenic setting, or where restricted development area precludes a higher rank (e.g. Box Canyon Falls, Ouray).

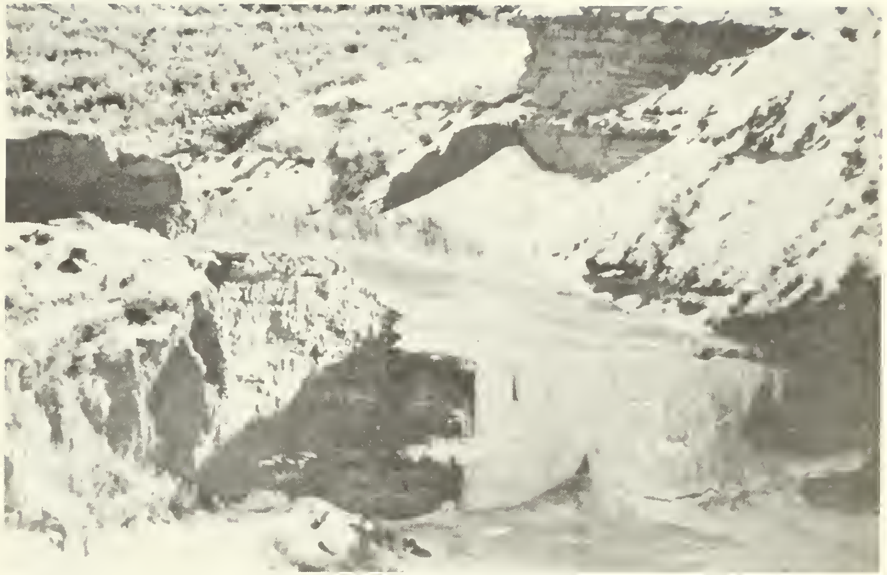
Class 4 - Waterfalls or rapids which are of local significance, but which lack volume, permanent flow, or high scenic value (e.g. Slater Falls, Slater, or The Potholes, Grand Junction).

Class 5 - Waterfalls or rapids of small dimensions, lacking the capability to engender intensive use due to poor access, lack of permanent flow, or mediocrity (e.g. Vermillion Falls).

As a *subordinate* feature:

A waterfall is often found in association with an excellent fisheries, Subclass A, or with river access units, Subclass C. If the falls or rapids are of small dimensions, the fisheries may assume more importance than the falls or rapids; likewise with the river access units. In such cases, the two features combined may generate a higher level of use, and the rank of the ELU should reflect this. Often in more arid landscapes, narrow canyons contain eroded stone ledges that occassionally run very scenic, but short-lived, waterfalls (e.g. Miller Creek area of Skull Creek Basin); these may also be subordinate features.

The Potholes area near Glade Park contains a series of rather scenic but small-scale falls that are of local significance, but lack the relative size and volume of water to rank higher. This area likely ranks 4 QFE.



Vermillion Falls in Browns Park is a small-scale feature whose flow varies with season of year. This photo shows the falls in winter when it freezes. A subordinate feature in many landscapes, but in this subdued topography, is probably a 5 FQ.

This small waterfall at the spillway from DeWeese Reservoir is a subordinate feature of the land unit beyond it ranking: 3 KVF.

This rock ledge lines the smoothly scoured bottom of an extremely rocky canyon in Skull Creek Basin. Though it appears dry in this photo, during spring runoff or summer thunderstorms, an especially scenic falls occupies this otherwise arid landscape. With the other more dominant features, this unit would rank: 4 RHF.

SUBCLASS G --
Glaciers or Permanent Snowfields

Land units containing glaciers or permanent snowfields.

Characteristics:

There are regional variations in classification of this feature due to generally low altitudes and a scarcity of permanent snow. Where potential access to the margin of the feature is extremely difficult, only the most significant viewpoint(s) will be ranked, and the feature itself will assume the rank of its adjacent area. Where access either presently exists or is feasible, a portion of the snow and ice surface permitting on-site use, study, or interpretation may also be included in the higher ranking unit.

Important factors are the areal extent, volume of ice, the setting (see VRM Scenic Quality esp.), and the feature's interpretive potential. The G symbol is confined to perennial snow and ice features.

Classification Criteria:

As a *dominant* feature:

Class 1 - A majestic glacier with high scenic attraction or a close view of a major glacier permitting study or interpretation with possibly a more restricted but nevertheless outstanding or imposing view.

Class 2 - A major glacier with limitations on the adjacent area developable such as for study or interpretation, or scenic setting.

Class 3 - A small glacier or the tongue thereof with limited opportunity for use but with high scenic attributes.

Class 4 - A small inaccessible glacier with a very limited opportunity for use and with limited scenic qualities.

Class 5 - Extensive scenic ice or snow fields at high elevations with capability for access, limited views, or other limitations.

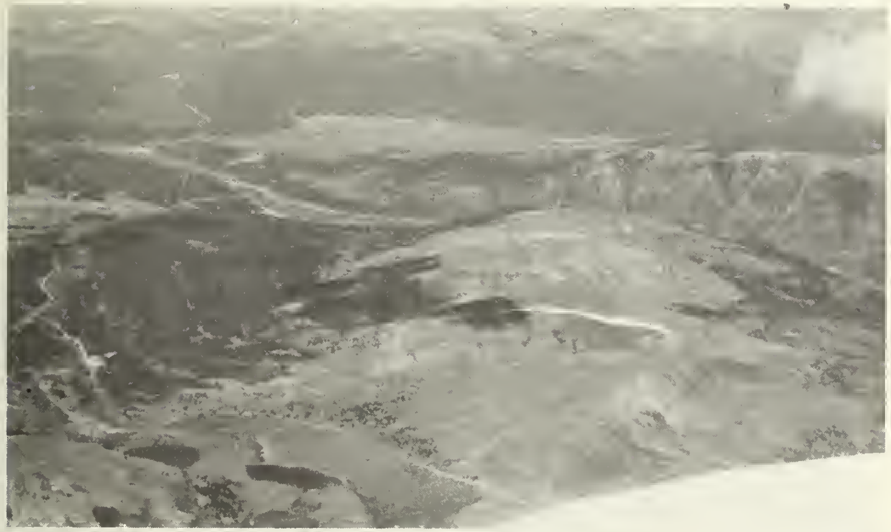
Class 6 - Other high elevation snow or ice fields.

As a *subordinate* feature:

Where a glacier or perennial snow and ice feature is significant, it will be subordinate only in a high ranking unit. Where small snow and ice features are plentiful, G may appear as subordinate to interesting rocks, topographic configuration, viewpoints, fisheries, waterfalls, or streams, and may upgrade the unit by one class (e.g. American Flats, Ouray).

Perennial snowfields in the American Flats area near Ouray occur in a highly scenic setting likely rating 4 QEG.

Extensive snowfields near Engineer Pass would also be a subordinate feature in this particularly scenic environment. Only in special conditions will the G symbol be in the dominant position on any public lands in Colorado.



Perennial snow cornices like this one east of Leadville may be reflected in the capability classification as a subordinate feature, but it is highly unlikely that this feature would ever influence the rating.

SUBCLASS H--
Cultural Resources : Historic and Archeologic

Land units containing cultural resources: both historic and archeologic.

Characteristics.

Regional differences in treatment of cultural resources must often be considered; what may be culturally significant in one end of the State may be commonplace and lacking in recreational capability in the other. However, in many cases, the feature may contribute to the general atmosphere or character of any given unit.

Certain units earn a relatively high rank on account of their historical significance alone; others depend on original structures or reconstructions thereof. *Often* the rating depends as much on the setting as on the historic or cultural integrity of the object.

The effect that past advertising and promotion has played in developing a heightened awareness of certain cultural resources is recognized. However, care must be exercised to ensure that the classification requires the rating of sites that have physical evidence and/or which have a valid historical basis; the classification is one which evaluates inherent recreational capabilities which really exist in actuality. Associated activities include interpretation, outdoor education, general viewing, and nature study or recording.

Classification Criteria:

As a *dominant* feature:

Class 1 - Cultural sites of major or nationwide significance which have a very high capability to engender and sustain intensive use. Normally, the setting would have to be very attractive, there should be structures with major attractiveness and appeal, or a paramount historical attraction, in order to warrant Class 1 (e.g. Cripple Creek).

Class 2 - An historic or archeological site of major significance but which lacks the popular appeal to rate Class 1. May also be a site of regional or Statewide significance having popular, or potentially popular, appeal. Normally, structures or archeological evidence will have to be obvious (e.g. Escalante Ruins). Includes major listings on the State or National Register of Historic Places.

Class 3 - An historic or archeological site of regional, State, or local significance which may be lacking certain aspects precluding higher rating. These may include an area capable of development, the setting, degree of decay (or lack of physical evidence), historical or cultural importance (relative to the region), etc. These may be quite well-preserved but lacking significance, conversely. Generally these sites would need stabilization or restoration to allow them to rank higher. Examples include the White River Indian Agency Structures in Meeker (lacking integrity of setting). The Miller Creek granaries in Skull Creek Basin could rank higher provided physical access limitations were not present and should the features be less fragile in nature).

Classes 4-5 - Historic or archeological sites of local to regional significance, also with limitations on use and/or enjoyment of the area. Class 4 units generally have either some remaining structures or somewhat lower regional visibility and significance. Examples include the more important routes of early explorers, fur traders, or cattlemen (these might rate higher if any structures remain), and historic sites which genuinely merit markers; these may include some portions of the Dominguez-Escalante Trail or limited portions of the Fremont expeditions routes. Class 5 units may have neither well-preserved remaining structures nor a lower regional significance. These units include homesteads with cabins but lacking special significance, yet having moderately low capabilities to engender and sustain recreation use. Other units having cultural resources with associated structures in poor repair, historic sites or areas whose location cannot be precisely determined, etc. will likely rank even lower yet, thus as a subordinate feature.

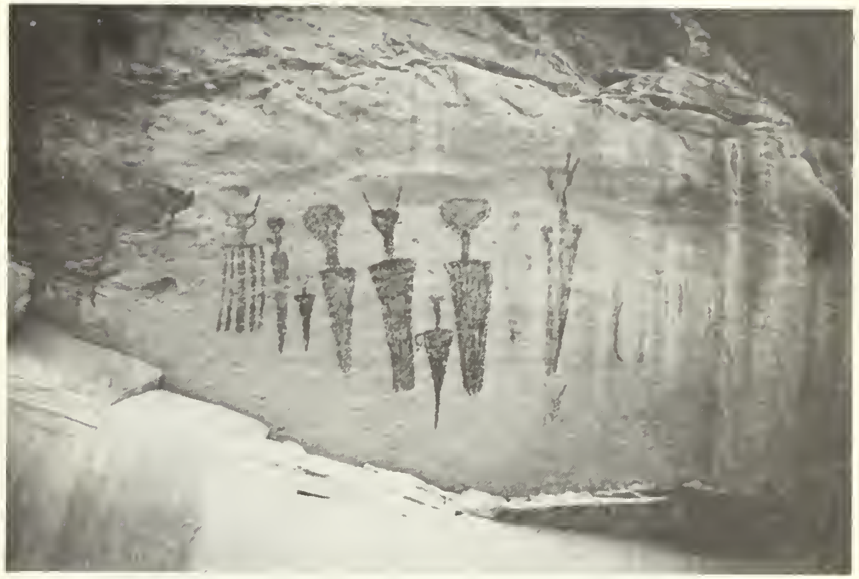
As a *subordinate* feature:

H is found as a subordinate feature in combination with a wide variety of other features and, if significant, may raise the rank by one or more classes.

The Escalante Ruins kiva is a national register site of regional significance, and aesthetically, is particularly attractive. This site may rank 2 HVP, being situated on a hilltop overlooking a rather extensive agricultural area.

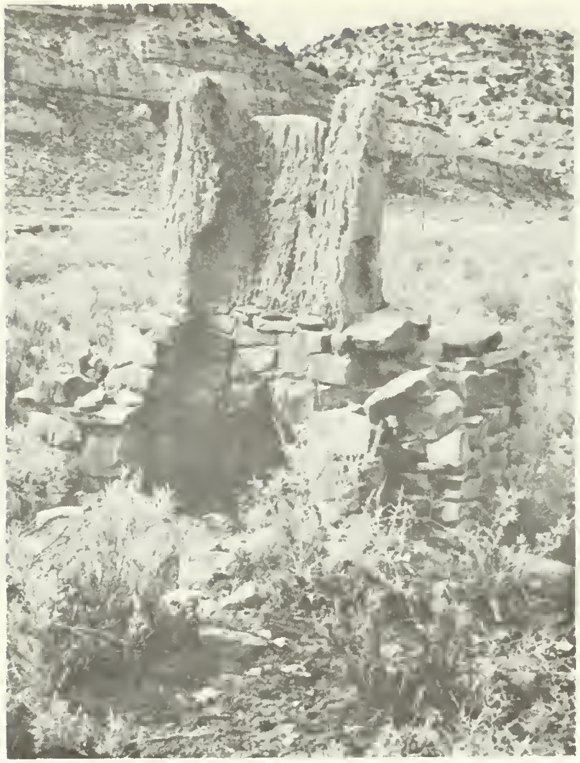
The Miller Creek graneries have especially significant aesthetic and human-interest appeal, and are capable of generating a moderately high volume of use. Most will rank Class 4, but are generally dominated by the R Subclass. This unit would rank 4 RH.

The Thornburg Battle site contain almost no remaining physical evidence, though it is of regional importance. This site genuinely merits the historic marker that is in place, and it rates either 4 HQP or 5 QHP in a rather scenic and pastoral setting.

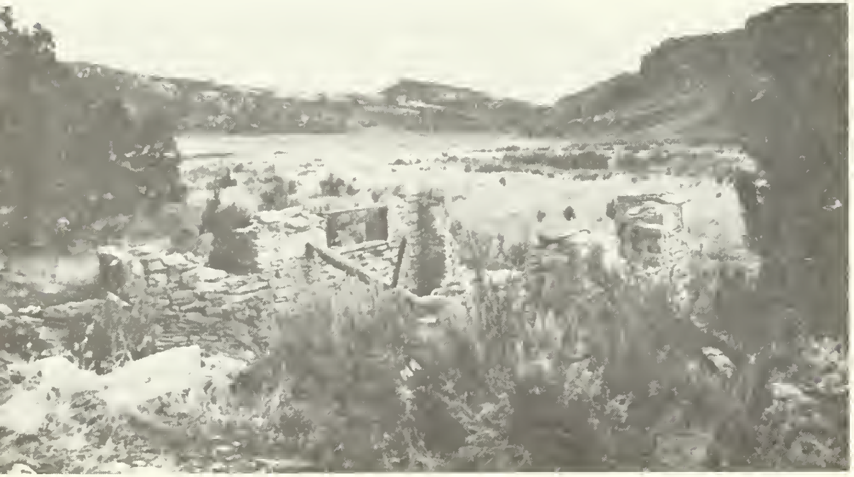


Located on the point of a hill, the Fremont Fortification Lookout is another National Register site and ranks 4 HQ.

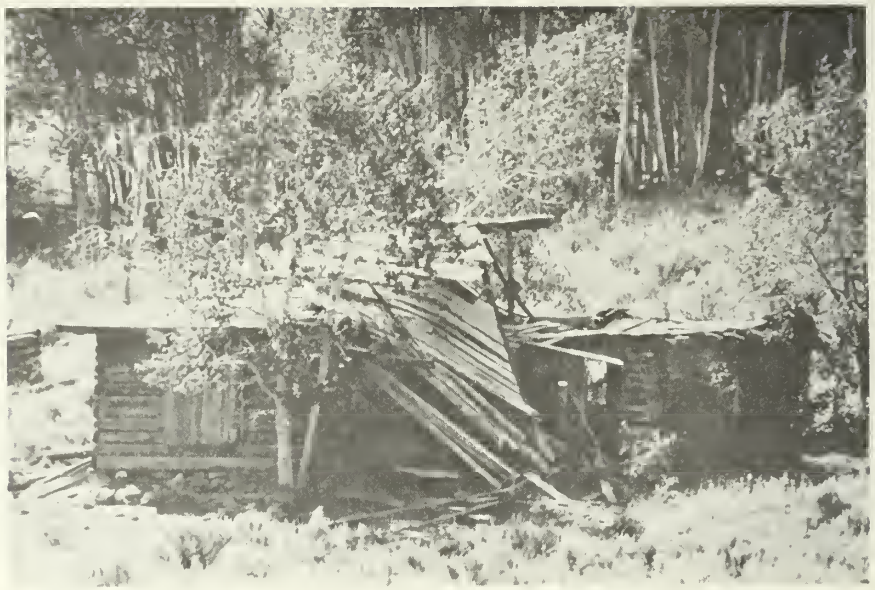
Carrotmen Pictographs is a National Register site of regional importance and in an attractive setting. It ranks 4 HRE (both photos above illustrate the feature).



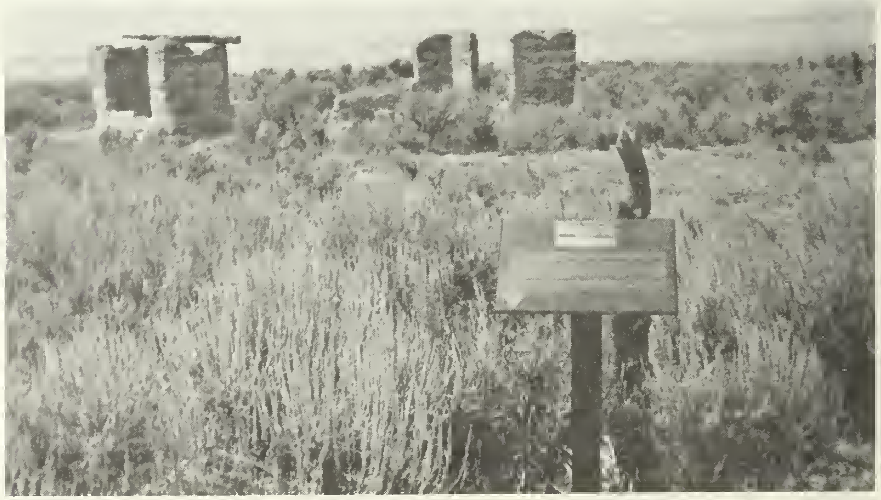
All that remains of the double-fireplace cabin that was built on Douglas Creek by trail riders bringing up the first large herd of cattle into the region around the turn of the century. Rating: 5 HQ.



Only a portion of this structure remains; though it yet has both aesthetic and human-interest value, but no particular historical significance, it rates 4 RH as a subordinate feature to the canyon near which it occurs.



Occurring in a park-like setting of quaking aspen and rolling sagebrush, this photogenic old cabin has no particular historical significance, but will dominate this landscape. Rating: 5 HQ or 4 QH, depending on the association with other resource attributes and features.



The Grandt Homestead is illustrative in type and character of the early homesteading efforts in the Great Divide area during the early part of this century. Both its human-interest appeal and its aesthetic value combine to give it a rating of 5 HO, in an area especially well-suited to wildlife viewing--pronghorn antelope and sage grouse.

SUBCLASS J--
Collectable Rocks, Minerals, Etc.

Land units containing collectable rocks, minerals, or other materials.

Characteristics:

These features include relatively desirable rocks, minerals, common invertebrate fossils, wild fruits (such as service berries and chokecherries), and nuts (e.g. pinon nuts).

Classification Criteria:

This feature alone rarely supports intensive use because of the intolerance of the resource base or limitations in biological productivity. Consequently, as a *dominant* feature, J occurs very rarely except in Classes 6 and 7. For example, a relatively monotonous and barren rangeland area without other capability but for collecting common invertebrate fossils might rank 6 J (e.g. the tortilla agate area near Bald Mountian, Maybell). This feature also occurs in association with Subclass R to denote interesting but collectable rocks and minerals such as pertified wood and agate, etc; in these cases the J symbol will most always be in the *subordinate* position.

Varied exposures of interesting rocks and occasionally insect fossils occur on these rocky outcrops south of Rangely. The J feature would only be subordinate in either a 4 QVJ or 4 QJ rating.

SUBCLASS K--
Support Units

Land units containing resources and features that provide access to other shoreland or upland units having significant recreational capabilities, and themselves especially well-suited to various overnight or day-use activities and support facility developments.

Characteristics:

Only those areas associated with at least one, but usually several, particular recreation features will be evaluated for capabilities in this Subclass. Normally the associated feature, or at least one of the several associated features, must be capable of generating and sustaining intensive use activities. Associated features commonly include Subclasses A, B, C, D, E, M, or R.

The essential requirements for support area capabilities follow: stable but unconsolidated surface materials, suitable soils (see Appendix B), a relatively large area of low gradients or very frequent level terraces, proximity to, or eventual accessability to, potable water, forest or woodland vegetation (for aesthetics and as wind or sun screens), and capabilities for vehicle or boat access. A scenic environment is highly desirable (see VRM Scenic Quality).

Classification Criteria:

These land units may be the *dominant* feature of a Class 3 or 4 shoreland unit with good to moderate capability, in terms of the essential requirements outlined above. These capabilities generally provide for access to water, for various water-oriented overnight and day-use developments, and for associated activities such as camping, picnicking, outdoor education, interpretation, etc., and in association with other activities including scenic or wildlife viewing, etc.

These units may also be the *dominant* feature of a Class 3 or 4 upland unit with good to moderate capability for access to upland resources and features noted above, and also for various similar land-oriented overnight and day-use development potential, also as outlined above. Activities associated with these units may include scenic or wildlife viewing, hiking, rock climbing, collecting, ORV use, etc.

The K symbol may appear as a *subordinate* feature in units ranking from Class 1 to 5 in association with any of the above features lending themselves to intensive types of

ctivities, including those mentioned above; and it may
nfluence the rating of the unit. The K Subclass may be
ubordinate to a normally low intensity Subclass such as
isheries units or units adjacent to floatable waterways.
here land units suitable for camping and associated ac-
ivities occur along floatboating waterways with a low
requency, areas having good capability for small or
rimitive campsites may be defined by the K symbol, gen-
rally in a *subordinate* position. But in such cases, in
iew of the low intensity of use, it is not unlikely that
hey will raise the rank of the unit.

xcellent fisheries in Powderhorn Lake lie adjacent to shoreland units
specially well-suited to support use, especially primitive camping.
assification for the units on the left side of the lake in lodgepole
ne park-like stands is 3 KQA or 4 QKA.

Sagebrush and grass-covered benches like this one below Signal Butte on the lower end of Little Yampa Canyon rate 4 CAK, with river running capabilities in river access units, fisheries, and potential for support use, in this case, especially camping, picnicking, and interpretation or outdoor education.

The proximity of this ELU to high value ELUs containing R, H, O, and V features, in an area of high topographic diversity, rates it as 4 QEK, having capability for a variety of support uses related to use of the other resource attributes and recreation features. Location: Skull Creek Basin.

Both of these photos illustrate a lack of support unit capabilities along the Arkansas (above) and upper Colorado (below) Rivers. In such shoreland units, river access capabilities are not indicated in the Subclass denotations. However, note that this in no way reflects a lack of capabilities on the river itself, as for river rafting.

SUBCLASS L--
Landforms

Land units containing interesting landform features, other than rock formations, generally void of vegetation.

Characteristics:

Erosional features of unconsolidated sedimentary or alluvial materials such as adobe hills, landslides, badlands, hoodoos, and sand dunes. Also includes man-made features such as dredging tailings or spoil banks (see also Subclass Z; these two Subclasses often occur in close association).

Capability for viewing, interpretation, or outdoor education may exist within the unit and in direct association with the feature, or it may exist within adjacent or nearby ELUs from which the feature is visible.

These features often lend themselves to more intensive types of recreation use as well; this capability is often significant for various types of off-road vehicle (ORV) use (esp. cycle, four-wheel, and dune buggies). Note that capability for ORV use is generally implied, along with other activities, in the Q symbol. However, especially noteworthy capabilities for ORV use exist on these land units that contain landform features covered by the L symbol.

Classification Criteria:

Significant factors in the classification of such features are the aesthetic attractiveness or their human-interest values, relative scarcity, overall areal extent, topographic exposure, distinctive or unique aspects, and overall configuration and relief. Capability for access is also rather important. Because of the generally unconsolidated and fragile nature of some types of landforms, and also due to some fragile vegetative types, the greatest capability for ORV use will usually be at Class 4. The L symbol as a dominant feature, is found in the following classes:

Class 2 - A highly outstanding or unique landform with high capability for viewing, interpretation, outdoor education, or associated activities.

Class 3 - A relatively high-value (though not outstanding) landform capable of attracting and sustaining a moderately high amount of recreation use. Only especially stable landforms with a suitable area developed, including generally gravelly, stable and/or well-drained soils, will exhibit this level of capability for ORV use.

Class 4 - Landforms with good capability for other dispersed activities in addition to viewing and interpretation, including ORV use.

Class 5 - Units, usually extensive, in which landform features (rather than mere topographic variety, see Subclass Q) contribute to dispersed activity capability, and which lack the capability to rank higher. Limitations may include unstable or erosive soils, extremely steep or precipitous slopes, etc.

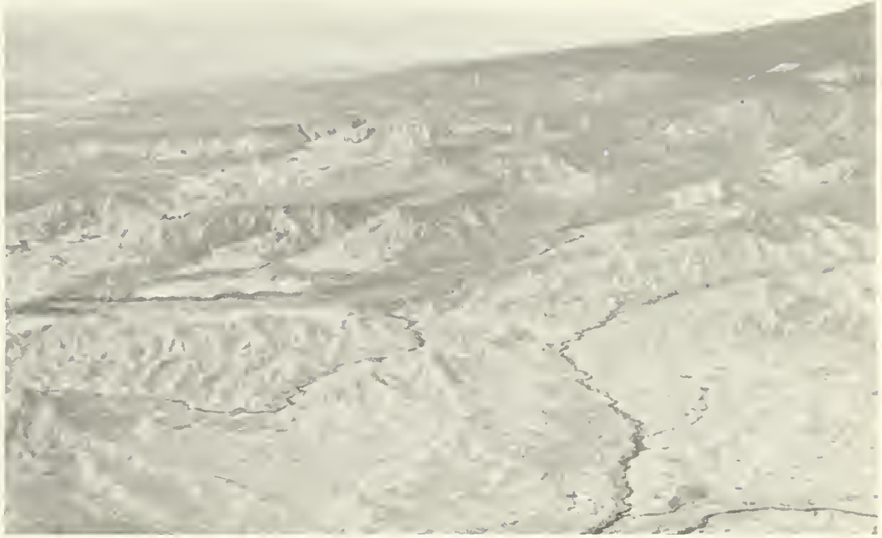
Class 6 - Relatively insignificant and/or fragile landforms having little capability for viewing, interpretation, or ORV use.

When a landform occurs in association with other more dominant resources or recreation features, the L may appear as a *subordinate* feature, generally in Classes 4 through 6.

Highly dissected and varicolored badlands topography dominates this area known as Vermillion Bluffs, providing frequent good viewing opportunities. Rating: 4 LQO.

Badlands topography adjacent to and below the Bookcliffs near Grand Junction has a generally high capability to generate ORV use in terms of both its desirability to users and the relatively stable and resistant nature of the soils (top photo). A similar situation exists in the Castle Gardens area near Salida (lower photo).

North Sand Dunes is a semi-active dune area, second in significance in the State, in terms of illustrating the processes and actions of dunes. However, the unstable and fragile nature of peripheral areas limits its capability to 4 LEH or 4 LEO.



Extensive adobe hills near Delta are highly dissected, but lack scale and overall landscape diversity to rank higher than Class 5 or 6.

SUBCLASS M--

Units on Small Surface Waters

Land units containing frequent small ponds or lakes, or units lying adjacent to continuous streams.

Characteristics:

The M symbol indicates frequent surface waters which are large enough to warrant separation as shorelands. It is also used to indicate presence of stream water in a stream course corridor unit, where water-oriented resources or recreation features such as A, C, D, F, or W are not present or are insignificant. Associated activities include fishing, floatboating or river running, camping, picnicking, and wildlife viewing.

Classification Criteria:

As a *dominant* feature, M is most commonly used in Class 4, 5, and 6 units lacking more significant features, but it may have application in Class 7 units dominated by marsh or bog conditions.

As a *subordinate* feature, intensive use features in Classes 1, 2, or 3 may be complemented, but are generally not influenced, by M. It has occasional application in Class 4, associated with Q, to indicate frequent surface water features in a unit with high capability for dispersed activities, and may contribute to the ranking.

On the Strawberry road north of Meeker, this pond occurs as a subordinate feature in a 6 QP landscape; rated 6 QPM.

Both of the above photos illustrate 5 MW features. The upper photo is a particularly attractive pond with associated riparian habitat in an otherwise subdued and relatively monotonous landscape near Great Divide (rated either 6 QO or 5 OQ). The lower photo illustrates a small irrigation pond in the midst of a largely agricultural landscape (rated 5 PQN) east of Craig.

Vermillion Creek runs only ephemerally, and may be a subordinate feature in this 6 Q or 6 L landscape.

SUBCLASS N--
Extensive Winter Upland Units

Rather extensive land units having significant snow cover for a major portion of the winter season, and topographic, vegetative, and climatic conditions conducive to snowmobiling, cross-country skiing, and associated winter recreation activities.

Characteristics:

Note: Unless the winter snow characteristics are truly *significant*, capability for winter recreation will be expressed through use of the Q symbol, and the N Subclass will *not* be used.

Activities associated with this Subclass include predominantly snowmobiling, cross-country or nordic skiing, and snowshoeing. Also included, though perhaps to a lesser extent, are scenic viewing, wildlife viewing, picnicking, ice fishing, and perhaps outdoor education and interpretation. Snowfall accumulation, frequency of snowstorms, and length of season are primary considerations. Topographic and vegetative characteristics are also important. Landscape variety is desirable as is scenic quality (see VRM Scenic Quality). Large treeless expanses in known areas of high wind and very steep slopes may reduce or altogether eliminate this Subclass by creating unuseable snow surfaces or serious use hazards. Natural capability for physical access to these land units is important.

Classification Criteria:

Generally these land units will not rank high as activities associated with this feature are highly dispersed in nature Extensive areas of diverse terrain are generally a prerequisite for the N Subclass.

As a *dominant* feature:

Except at high elevations in areas of abundant and frequent snowfall, this feature will not occur in the dominant position. Classes 3, 4, and 5 may occur in the dominant position.

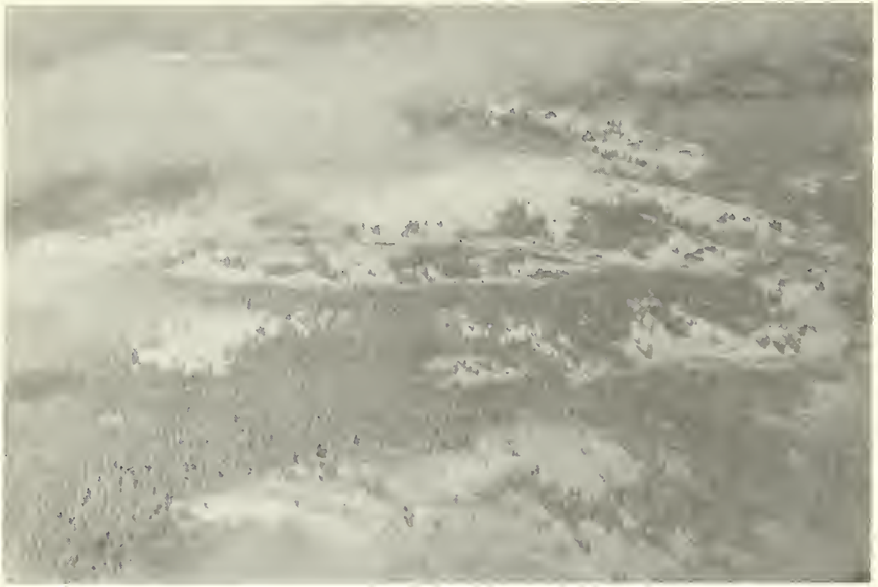
Class 3 - Exceptional topographic, vegetative, climatic, and snow conditions are pre-requisites for this class as well as a developable support area. Quite stable, gravelly, and/or well-drained soils are necessary to sustain intensive use during transitional early winter and spring thaw periods. These are units offering outstanding opportunities for snowmobiling, cross-country skiing, etc. and often occur in association with other features having intensive use capabilities.

Class 4 - This Class would exist in special circumstances on areas of rolling to gentle topography with forest or woodland species occurring in scenic park-like distribution, having other complementary resources or recreation features that are unable to rank higher (e.g. Rabbit Ears Pass area, Steamboat Springs).

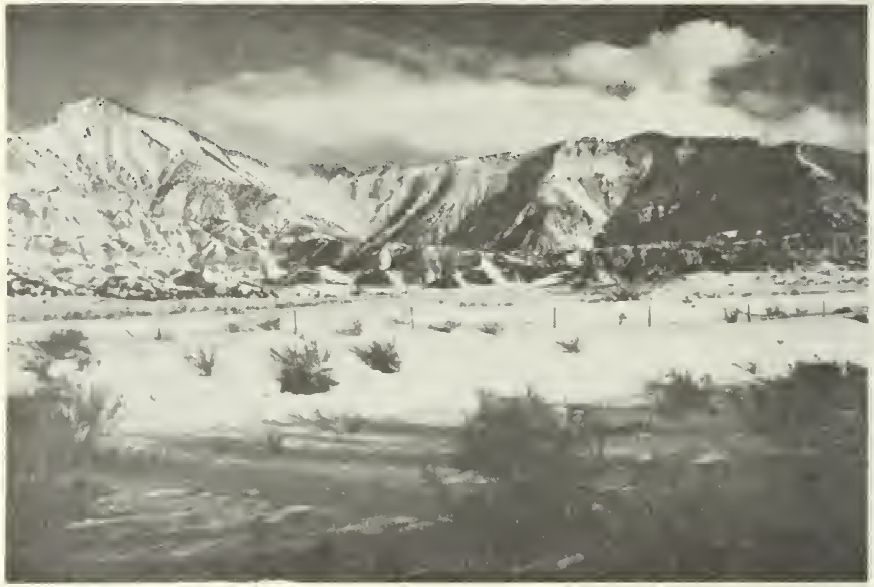
Class 5 - Land units lacking higher capability which have good snow depth and a relatively long season. Includes narrow and rather level to rolling drainage bottoms, in areas not having a great deal of landscape variety, where use patterns are restricted to the linear drainage configuration.

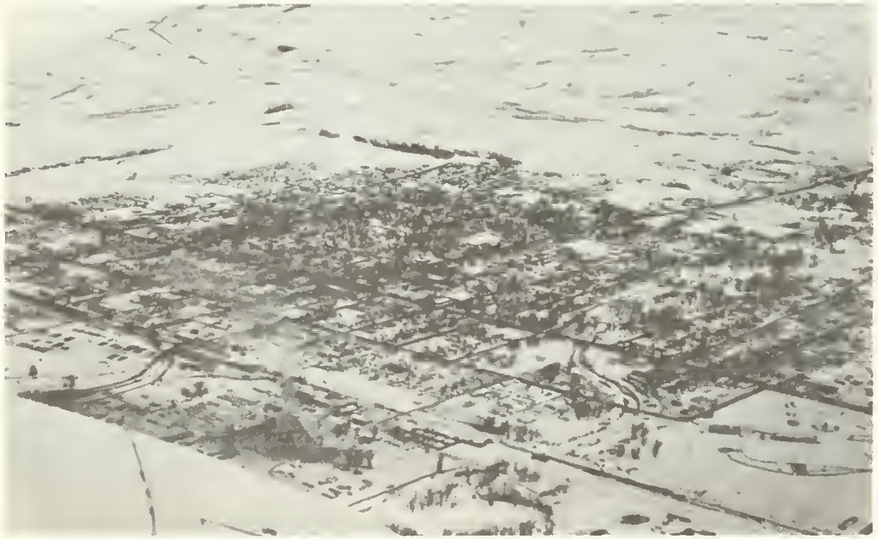
As a *subordinate* feature:

The N symbol most commonly occurrs in this position in land units of any rank, but is is most likely to appear as a subordinate feature in Classes 4, 5, or 6. In these classes, N is often associated with A, C, E, P, or Q.

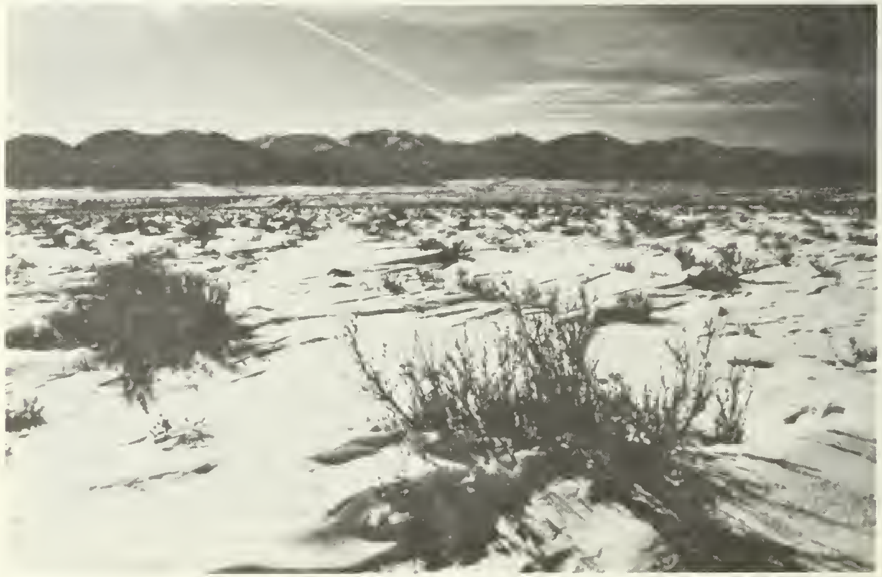


This area near Rabbit Ears Pass contains abundant snow that accumulates in frequent snowstorms and lasts through most of the winter season. Occurs in a rolling to gentle topography with park-like distributions of various spruce-fir forest species. Class 4.





Moderately heavy snowfall lasting for a significant portion of the winter occupies these upland units northwest of Craig toward Cedar Mtn. Rating: 5 PNO.



Both of the above photos illustrate inadequate snowfalls to be denoted by the N symbol. A portion of the Grand Valley near DeBeque appears in the upper photo and generally lacks enough snow. The lower photo indicates windblown and crusted, although generally inadequate snow cover in Browns Park.

Narrow drainages having rather level to rolling floors would rate 5 QN or perhaps 5 QON.

SUBCLASS O-- Upland Wildlife

Land units containing recreationally valuable big game, upland, or non-game wildlife.

Characteristics:

Activities associated with upland wildlife include predominantly viewing and hunting. Also included, but to a lesser extent, are hiking, cross-country skiing, nature interpretation or outdoor education, scenic viewing, camping, picnicking, and nature study or recording.

The O symbol will be used to indicate the suitability of habitat for, and the probability of the presence of reasonable numbers of one or more species of wildlife normally associated with upland areas, which, because of their habits, are likely to be of popular interest to hunters and/or other recreation users. The probability of viewing wildlife is influenced, to a large degree, by terrain, vegetative cover, and the presence of water. An important vegetative consideration is edge effect; care should be exercised to recognize generally higher ratings for this Subclass in chainings and cut-over areas due to this factor.

All big game and smaller mammals (such as coyotes and foxes) are included (also note the existence of wild horse herds and perhaps transplanted or reintroduced species, such as bighorn sheep), as are upland birds (such as all raptors, grouse, sage hens, sandhill cranes, etc), the larger rodents (including prairie dog colonies, etc.), and even reptiles (e.g. rattlesnake dens, etc.). Aquatic fur-bearing species are excluded (see Subclass W). The daily and seasonal movement habits of most upland wildlife species in their natural state, and the usual wariness of most species, limits the natural capability of any small unit to engender and sustain intensive wildlife viewing or hunting use. Features such as prairie dog colonies and some waterfowl use areas are exceptions.

Especially important is the consideration of inventory data on locations, species, and relative numbers of wildlife in seasonal concentration areas such as critical winter ranges, nesting, and struting or mating areas. It is important to distinguish between these qualifying parameters and other data more relevant to the biologist who is involved in habitat management, such as overall ranges by species, etc.

Classification Criteria:

Classes 3 to 7 are included in the *dominant* position.

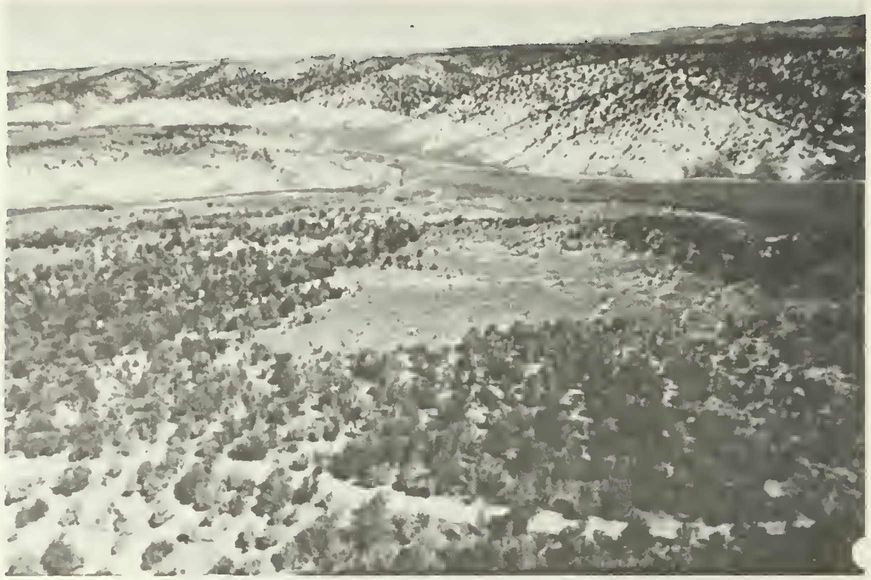
Class 3 - A unique or outstanding opportunity for viewing and interpretation of one or more species of upland wildlife confined to a relatively small area. Highways may pass through good wildlife habitat, concentration areas, or they may cross a migration route. In these situations, animals are often accustomed to humans at close range, and visitors may have opportunities for viewing and photographing in a semi-natural environment.

Class 4 - Regional areas with exceptional capability for viewing, interpretation, or outdoor education activities associated with significant populations of upland wildlife, in which concentrations are known to exist under normal conditions in either the summer, autumn, or winter seasons. and in which wildlife is considered to be the dominant attraction recreationally. Highways may also pass through these areas (e.g. regionally significant big game concentration areas, very large prairie dog colonies, etc.).

Class 5 - Large areas or smaller colonies with high capability for viewing or hunting one of one or more upland wildlife species, but without other significant recreational capability (e.g. prairie dog towns without real high concentrations).

Class 6 - Extensive areas with moderate capability for the viewing or hunting of dispersed upland wildlife species. May include smaller areas with good populations of relatively intolerant species (e.g. sage grouse strutting grounds, blue heron rookeries, etc.).

Class 7 - Areas with little recreation capability but in which wildlife viewing or hunting is a possibility.



Generally southerly-exposed slopes such as these in Piceance Basin, have a higher capability to generate recreation use related to upland wildlife, specifically for big game, and deer most especially.

Views such as this are commonplace adjacent to Colorado highway 13-789 during the winter season near Piceance Basin. Rating: 4 OQE or 4 QEO.

Extensive areas with moderate capability for the viewing or hunting of dispersed upland wildlife species including this area, where viewing opportunities, such as for this elk, are especially significant during the spring of the year, and on southerly-exposed and brushy hillsides.

Concentration areas for big game, like this area in North Park, would rank from Class 4 to Class 6, depending on the relative likelihood of viewing. Often occurs in association with P for many big game species.

Sage grouse strutting grounds, occurring without special other recreation features or resource attributes, commonly rank 6 O.

Southerly-exposed cliffs such as this in Cross Mountain Canyon have a moderately low to low capability to generate recreation use relative to the presence of raptor nesting or perching areas. Generally, these features will be subordinate to some other feature or attribute such as R or Q.

SUBCLASS P--
Cultural Landscapes

Land units exhibiting cultural landscapes such as ordhards, pastoral landscapes, farmlands, and ranchlands.

Characteristics:

Examples of these patterns include pastoral landscapes, irrigated mountain meadows, and ranching or farming patterns. Cultural features resulting from man's husbandry of the landscape, lend themselves primarily to viewing, interpretation, and associated dispersed activities. Abandoned farms, old homesteads, ranches, or industrial lands where an attractive landscape remains may also have recreational capability that will be indicated by the P symbol, but may also occur in association with the H symbol.

The P symbol commonly occurs throughout rural, agricultural, and ranching areas with capability primarily for viewing land use patterns, or ranch and farming activities, especially associated with pleasure driving; it is therefore generally of low rank.

Classification Criteria:

Classes 2 to 6 are included in the *dominant* position.

Classes 2-3 - The P symbol is dominant in land units ranking Class 2, where a unique cultural feature of outstanding interest lends itself well to viewing and interpretation; and in Class 3 units where there are some limitations to intensive use of the unique feature.

Classes 4-5 - Areas exhibiting cultural features with high interest and attraction. An outstanding orchard area may rank Class 4, as may a park-like landscape or irrigated river bottom where the evidence of cultural activity has particular aesthetic, human-interest, or other recreational appeal.

Class 6 - Extensive agricultural areas, upland farmlands (such as dryland grainfields), or ranchlands will normally rank Class 6, although areas may be upgraded to Class 5 when associated with Q.

These cultural landscape features will frequently be *subordinate* to other features in units of all Classes where they will have little influence on the ranking.

Irrigated hay meadows such as this will normally rank Class 5 unless accompanied by another feature.

Outstanding fruit orchards at Grand Junction attract sightseers annually from throughout the state, especially during the spring blosoming. This area would likely rank Class 4.

Pastoral meadows along irrigated floodplains often occur in association with Subclasses A, C, E, O, or W. Where they are particularly attractive, and especially when associated with these other features, they will nearly always rank Class 5 in a dominant or subordinate position.

Even limited agricultural areas, such as these irrigated meadows along the Little Snake River, may influence the ranking, especially when they occur in such an arid and colorless landscape as appears in this photo. The aesthetic attractiveness of these features plays a major role in determining resource capability.

SUBCLASS Q--
Topographic Configuration

Land units predominantly characterized by their topographic configuration, including units of exceptional landscape diversity, which enhance opportunities for engaging in a variety of activities such as hiking, general sightseeing, or outdoor nature studies.

Characteristics:

Greater landscape diversity increases any given land unit's aesthetic attractiveness and human-interest values, and it provides increased capability for a variety of dispersed recreational activities. On the other hand, some landscapes have no special resource values nor features of recreational significance, and have little landscape diversity as well; these units will generally have correspondingly low recreation capabilities.

Although a rugged topography can detract from the intensive use capability, the Q symbol will be used to indicate a positive condition of recreation capability. This positive condition stemming from topographic configuration, expressed by the Q symbol, may also be used to indicate the existence of at least minimal recreation capability, no matter how monotonous and void of recreation features an ELU may be.

The Q symbol will indicate that the unit has some capability for one or more dispersed or resource-tolerant activities as hiking, hunting, viewing, camping, picnicking, ORV use, riding, nature study, outdoor education, gathering and collecting, walking, pleasure driving, cross-country skiing or snowshoeing, or other dispersed recreation activities. In many land units the Q symbol may appear singly. However this feature will usually be complementary to, or used in association with, other resources or recreation features. For example, Q is used also in combination with V and R in extensive mountainous areas as appropriate.

See also Section III of this handbook and classification manual.

Classification Criteria:

Classes 4 to 7 are included in the *dominant* position.

Class 4 - Units which are suited to dispersed activities in extensive areas of diverse terrain, and where there are frequent good viewing opportunities.

Class 5 - Units where natural landscape diversity is the dominant characteristic, supporting varied dispersed activities and with moderately good viewing opportunities.

Class 6 - Units where topographic configuration is the prime characteristic (though actual landscape variety may be significantly reduced) and which supports dispersed recreational activities.

Class 7 - Units with a low capability for dispersed activities, relatively uninteresting land, in a landscape with some topographic variation. May include extremely steep slopes that are rather monotonous without any significant resources or recreation features.

As a feature *subordinate* to other symbols, Q will frequently be used to indicate diversity of landscapes contributing to the recreation capability of land units in any Class, where it will *often* influence the ranking.

SUBCLASS R--
Rock/Geologic Formations

Land units containing interesting rocks and/or varied geological formations.

Characteristics:

Included are structural features such as exposed geologic sediments, anticlines, and faults; volcanic features such as plugs, sills, dikes, lava flows, and columnar jointing; and erosional features such as arches, balanced rocks, eroded platey or contoured rocks, veins, and other varied shapes. Highest ranking units will generally occur in especially scenic settings.

The rock/geologic feature need not be within the land unit rated to be reflected in the Subclass denotation; in such cases, a good viewpoint in an off-site ELU having high capability to accommodate use may be rated also, or instead of on-site evaluation and classification.

Associated with the close or distant viewing and interpretation of a feature will be such dispersed activities as hiking, picnicking, camping, climbing, and collecting.

Classification Criteria:

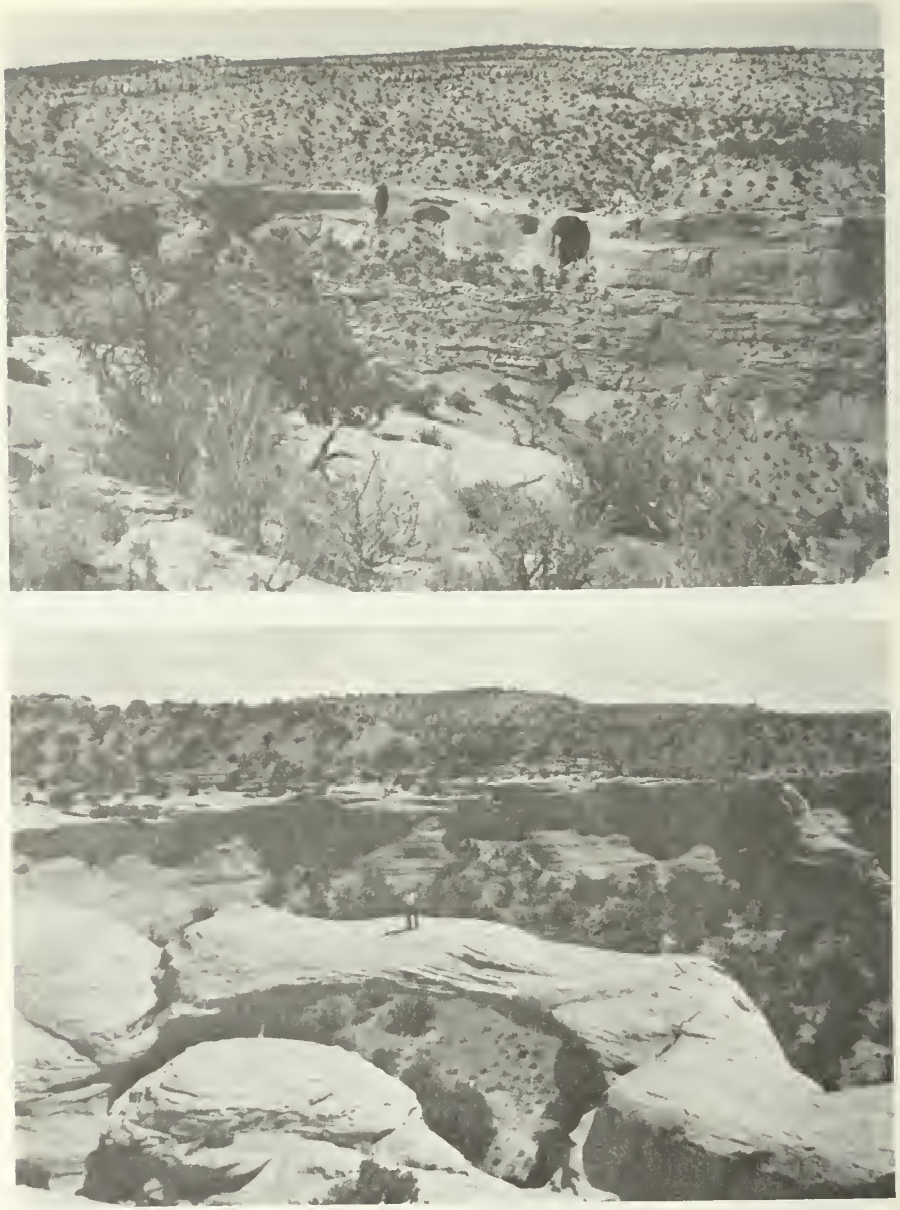
The R symbol is usually *dominant* in Classes 1 to 3.

Class 1 - An outstandingly scenic and spectacular feature lending itself exceptionally well (very high capability) to viewing, interpretation, outdoor education, and to actual on-site utilization, as in collecting (see also Subclass J). Includes textbook examples of geologic features.

Class 2 - Rock and geologic features, outstanding within the region, with high capability for viewing and/or interpretation, outdoor education, and exploration or actual utilization.

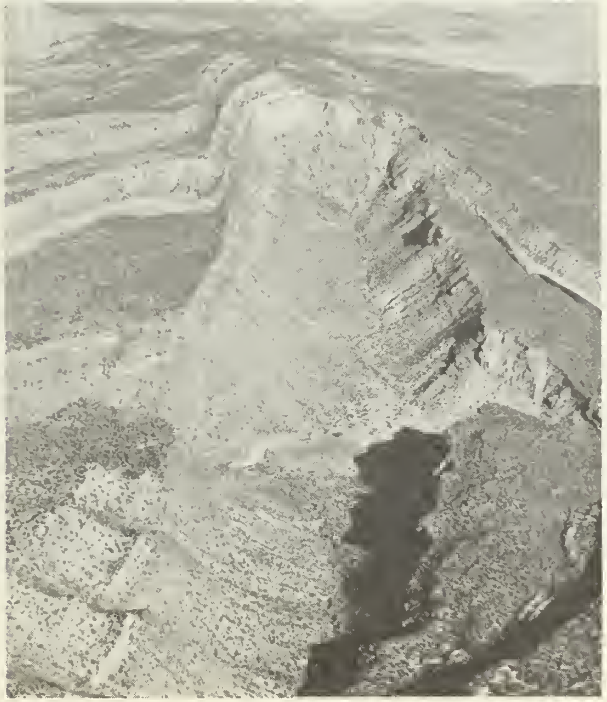
Class 3 - Rock features that are capable of attracting considerable interest but are unable to rank higher.

The R symbol can be *subordinate* to features in units of all Classes. Where it is subordinate in Classes 4,5, and 6, it will not influence the ranking.



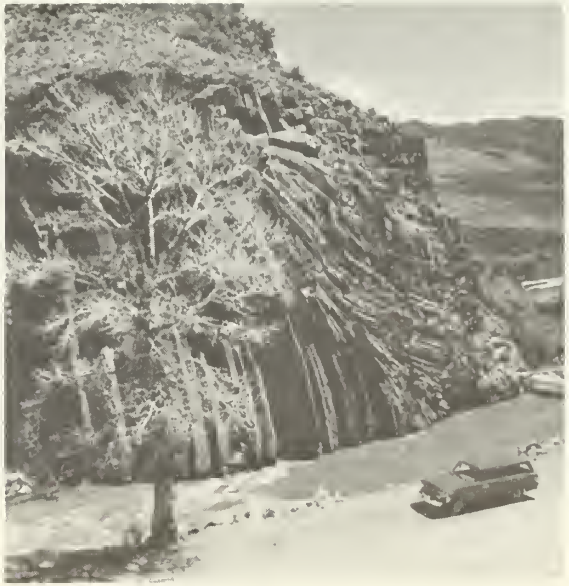
The above photos illustrate both the general landscape and the specific setting in which the arches of Rattlesnake Canyon occur. The canyon in general would rank 3 or 4 QRE or RQE. This specific arch would rank Class 2, being one of the most significant in the State.

This pinnacle in Colorado National Monument helps illustrate the nature of rock and geologic formations in association with a highly diversified topography, interesting vegetation, and a good viewpoint to the farmlands in the valley below. Ranking: 3 RVE.



This breached anticline in the Montrose District is a small-scale feature, but has very high aesthetic and human-interest value as nearly a textbook example. Would rank 4 RQE.

Needle Rock Natural Area is a volcanic plug occurring in a diverse and pastoral landscape. Would likely rank 4 REP in association with adjacent landscape types.



On Slater Creek near the Little Snake River occurs this classical example of volcanic columnar jointing. Likely Class 3 or 4. In association with the adjacent terrain, this ELU may rank 4 QAR.

Box Canyon is a relatively large-scale gorge-like feature, with a 4 RQ ranking.

Extensive areas of extreme landscape diversity in the Gunnison Gorge Recreation Lands have ELUs largely with a 4 QRE or 4 QRO ranking. Shoreland units at the bottom of the Gorge, adjacent to the Gunnison River, will have a relatively higher capability as suitable sites are so nearly precluded by the rugged topography.

Arapaho Rock is a somewhat isolated feature in this subdued and rolling landscape. Its aesthetic attractiveness and cultural value as a historic site rank it as 5 RQ.

Local occurences of fragile erosional shapes such as these in Browns park have significant aesthetic value, but would generally would appear as R in the subordinate position. If they occur with associated features, the ranking could be raised, to reflect increased recreational capabilities.

Extensive areas of cross-bedded sandstone with frequent good viewing opportunities, and associated with features O, E, and occasionaly H exhibit a moderately high capability to attract and sustain recreational use. Ranking: 3 RQE.

Fortification Rocks is a volcanic dike of special significance in terms of its human-interest value, having an unusual mineral composition. In addition, it occurs in association with P (farmland), O (rattlesnake dens), and H (contains an adjacent homestead with structures remaining). 5 RPO ranking.

SUBCLASS S--
Winter Upland Slopes

Relatively steep-sloping land units having significant snow cover for a major portion of the winter season, and containing physiographic, vegetative, and climatic characteristics valuable for downhill skiing and associated activities.

Characteristics:

Associated with these land units is predominantly downhill or alpine skiing and/or other associated outdoor winter recreation activities such as tobogganing, tubing, scenic viewing, and perhaps ice skating.

Most ELUs are not capable of generating alpine skiing use without extensive timber or woodland clearing and trail grooming. Because the rating reflects inherent capabilities, qualifying land units will not rank high unless they need no extensive timber clearing or are already developed.

The range of elevations (or the vertical drop) with continuous natural capability for skiing is the most important criterion next to adequate snowfall. Other conditions being equal, ski areas with the greatest drop will generally attract the greatest use. Two-thousand vertical feet or more is normally required for international competition.

Variety of Slope: Beginners need approximately 15% grades with level outruns; novices up to 25%; intermediates up to 40%; and advanced skiers need up to 50% with steeper pitches--usually. Outruns should be in the range of 50 to 80 or 100 yds. Concave slopes are also much preferable to those convex in cross-section. Note that avalanche hazard potential needs also be considered in the evaluation and classification.

Extent of Slopes: Capability for multiple downhill runs (each around 40 yds. or more in width) and lifts or tows is necessary for intensive development. A basin-shaped land unit with capability for radiating runs downward to a central service area is ideal.

Snowfall: The quantity, the cumulative depth throughout the average winter, the average duration of continuous snow cover, and the variability from year to year, are important criteria.

Orientation to prevailing winds and to solar exposure will strongly influence both snow conditions and skiing weather. Slopes facing in a northerly direction generally have the highest capability; those facing southerly will likely have only minimal if any capability.

Location and extent of land areas with support facility development is a critical and integral part of this feature's evaluation. Depth of soil, stability, and presence of rock outcrops, are factors determining inherent capabilities (and especially for making suitability determinations related to the various associated activities) -- not a part of this exercise, i.e. the ELU RCC.

Classification should consider the greater flexibility of area design and the benefits of wind screening that exists on forested slopes, notwithstanding the limitations mentioned above for densely-timbered units. However, note that in some areas, forest or woodland cover is essential to maintain a longer season of snow cover, or even to support marginal capabilities for this Subclass.

Domestic water from either ground or surface sources within reasonable pumping or gravity-feed reach is essential to intensive skiing use.

Classification Criteria:

Where there is intensive use capability through both summer and winter seasons, the land unit in association with at least one other high-value recreation feature may warrant a ranking higher by one class than either feature independent of the other.

Class 1 to 3 skiing areas are included in the *dominant* position. Any land units requiring extensive management to make them usable, such as extensive timber clearing and trail grooming will not have the S symbol in a dominant position unless other characteristics involved are outstanding.

Class 1 - Units of land including 2,000 feet or more of vertical drop; a variety of sheltered slopes suitable for all classes of skiing; average snow conditions to provide for a long season of use; and 100 acres or more of land with developments at the base of the slopes for outruns and supporting facilities.

Class 2 - Units of land including 1,000 feet or more of vertical drop; a variety of slopes suitable for all classes of skiing; average snow conditions to provide for a reasonably long season of use and 50 acres or more of land with developments at the base of the slopes for outruns and supporting facilities.

Class 3 - Units of land including about 500 feet of vertical drop; a variety of slopes suitable for beginner, novice and intermediate skiers; average snow conditions for that area (may include conditions suited to artificial snow-making) to provide 10 weeks or more of skiing; and 10 acres or more of land with developments close to the slopes, and suitable for runouts and supporting facilities.

As a *subordinate* feature, the S symbol is used to indicate skiing capability in any unit ranked from 1 to 5.

SUBCLASS T--
Thermal Springs

Land units containing thermal springs.

Characteristics:

Aspects important in the ranking of units for Subclass T include: the potential for access and a development area for supporting facilities; the volume, temperature, and composition of the water flow; geological and other human-interest features; and especially the scenic setting.

Classification Criteria:

The T symbol will be in a *dominant* position in Classes 1 to 5.

Class 1 - A thermal spring with a very high capability for generating intensive use over a long season. the ELU will generally include an outstanding scenic setting, outstanding geological features, other high-value human-interest features, or a volume and temperature of water that is capable of accommodating approximately 100 bathers at one time on a year-round basis.

Class 2 - A thermal spring with a high capability for generating intensive use. Included in the feature will be interesting geological, scenic, or other human-interest aspects with popular appeal, or a volume of water warm enough to accommodate up to approximately 100 bathers on a seasonal basis.

Class 3 - A thermal spring with a moderately high capability for generating intensive use, but lacking a majority of the characteristics attributable to a Class 1 or 2 spring.

Classes 4-5 - Smaller thermal springs with moderate and moderately low capabilities for generating intensive use. These will exist as small units which provide a focus within the broader area.

The T symbol may be *subordinate*, generally in Classes 1 through 5.

SUBCLASS V--
Vantage Points

Land units situated in topographic settings that provide good viewing opportunities, outstanding panoramas, or superior views.

Characteristics:

Normally, use of V as a dominant feature in high-ranking units is restricted to areas of limited extent offering the most outstanding views in the locality. A viewpoint or overlook is not necessarily the highest point of land; in fact, the converse may be true in certain cases. Often mountain scenery is best viewed from a point part way up a ridge or mountainside. Capability for access and an adequate development area should also exist. Associated activities include general viewing, picnicking, interpretation, outdoor education, nature study, and recording.

There will be generally, but not necessarily, a close correlation between Visual Resource Management (VRM) Scenic Quality ratings and the class of units having the V feature dominant. Other important factors include landscape diversity, cultural patterns, man-made features, wildlife, geology, historic features, etc., all which may be only visible from, but not contained within, the land unit containing the vantage point. Therefore, the V symbol may be closely associated with Subclasses E, G, H, O, P, R, and W.

Where viewpoints are very frequent, a few outstanding viewpoints are delineated. The viewing quality is acknowledged elsewhere by the class being raised, by the inclusion of V as a dominant or subordinate feature, and by elaboration, where necessary, in the narrative.

Classification Criteria:

As a *dominant* feature, it is considered best to relate V to class structure by way of regional or geographic considerations.

Class 1 - The most outstanding vantage points in the region or state. These units may also be in close proximity to other lower Classes marked by the V symbol.

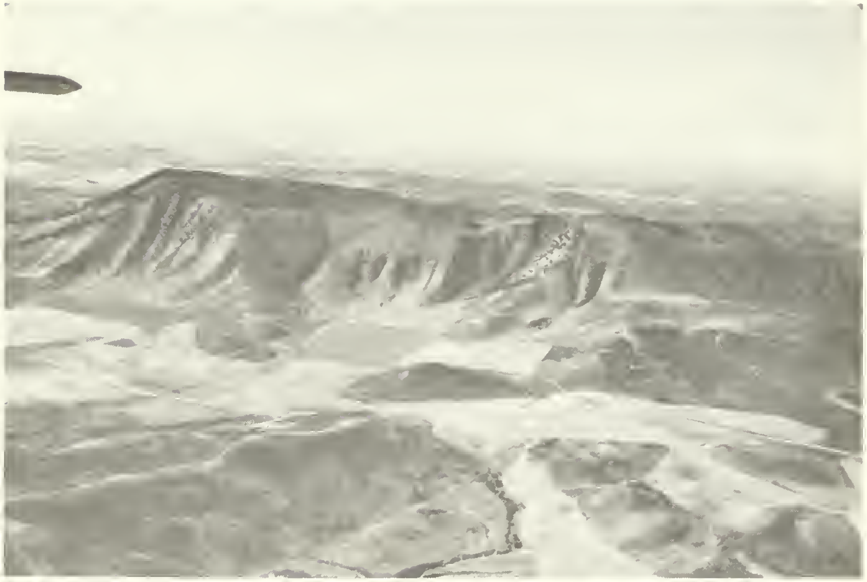
Class 2 - Views from the most outstanding overlooks in a given District or other sub-region of the state.

Class 3 - The most outstanding views obtainable in any given watershed, valley, etc.; the best views obtainable from major physiographic features in the locale.

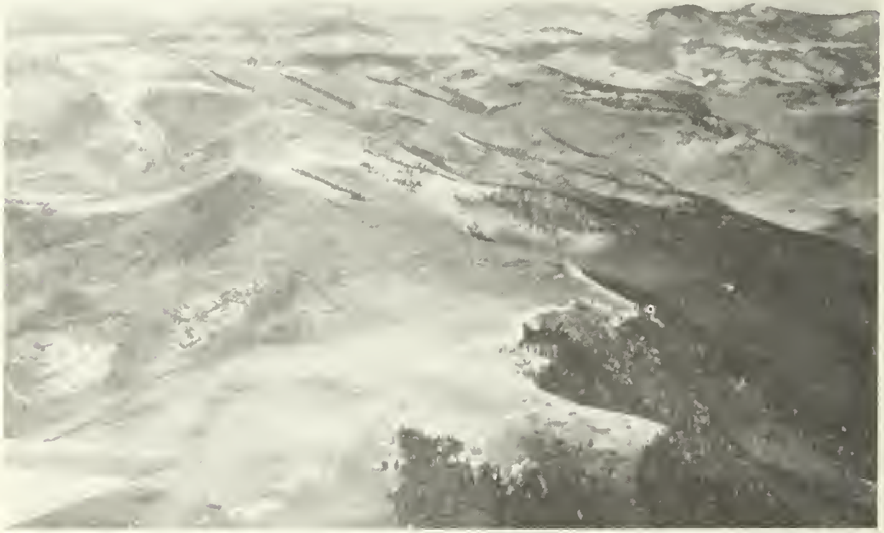
Class 4 - Numerous examples of views which are locally superior, but which do not rival the above examples.

Class 5 - A small hill on an edge of an escarpment may offer a view of uninteresting land classified as 6. These viewpoints may be designated 5V.

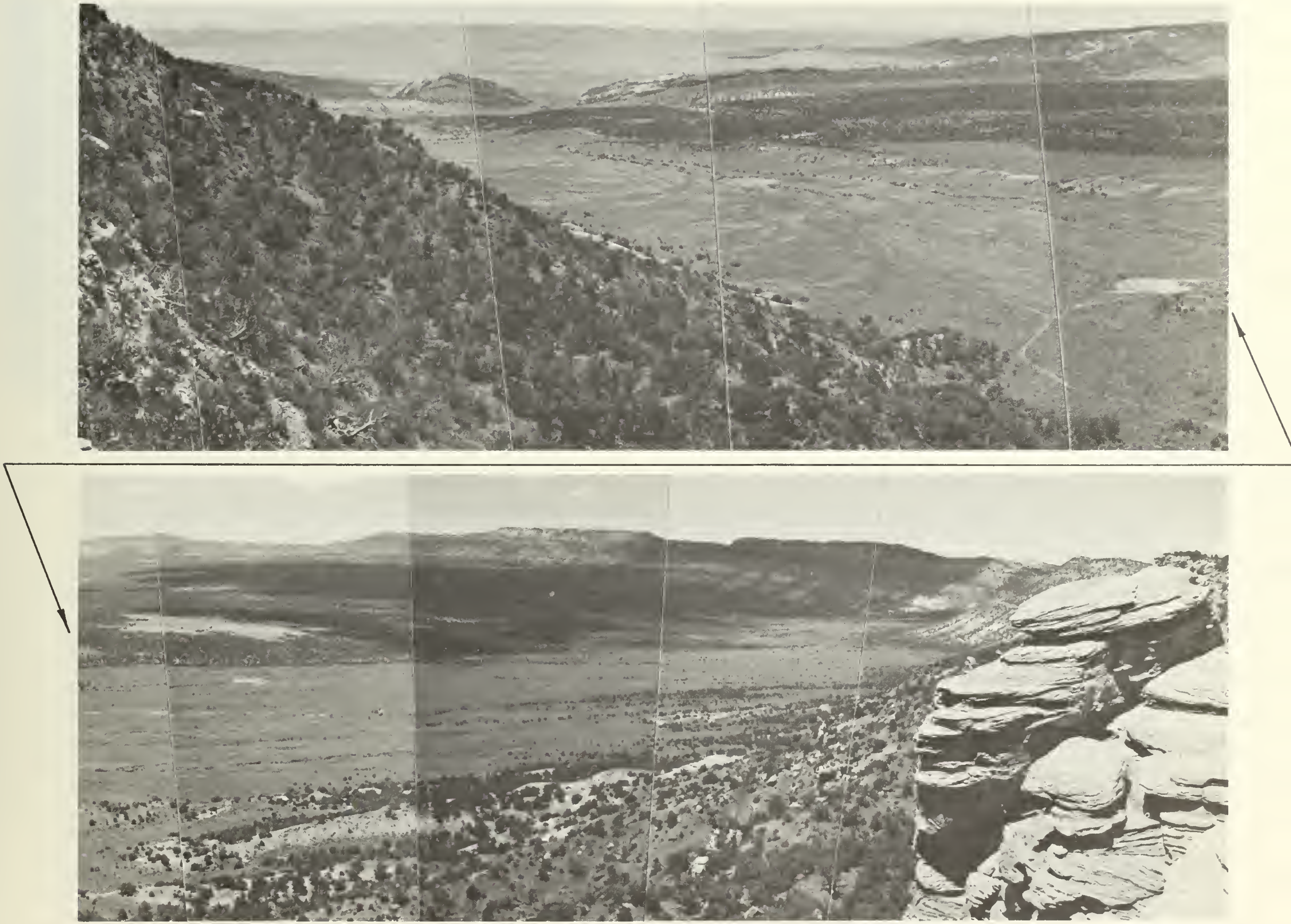
Views from the summit of Independence Mountain are some of the most outstanding in all of North Park. Ranking: 3 VHO; vantage point occurs in association with cultural resources and good wildlife viewing opportunities.



Although Cedar Mtn. is not especially significant in terms of its elevation, its topographic prominence relative to the surrounding area guarantees some of the best views obtainable in the lower Yampa Valley. Ranking: 3 VRO.



From the rim of High Mesa Grasslands Natural Area are vantage points which offer panoramas that are truly outstanding. However, these are locally superior, but they do not rival more significant viewpoints. Rating: 4 VR



The panoramic view illustrated above is one of the most outstanding in the Craig District. Ranking: 2 VRE.

Both views above are from the crest of the Powderhorn Primitive Area. They are among the best views obtainable in the whole Cebolla-Powderhorn area. Ranking: 3 VOE or 3 VRO.

In the San Miguel Planning Unit this view of Lone Cone is framed by ponderosa pines on a local county road. This viewpoint is ranked 5 QVE as a subordinate feature. Note that the V symbol is appropriately used from key viewpoints, that are not necessarily determined by their superior topographic exposure.

SUBCLASS W--
Wetland Wildlife

Land units containing recreationally valuable populations of waterfowl or other wetland wildlife.

Characteristics:

Associated activities include predominantly viewing, hunting and trapping, and floatboating or river running, but also, though generally to a lesser extent, hiking, interpretation and outdoor education, picnicking, and camping.

Wetland wildlife species include waterfowl, shore birds, marsh birds, and aquatic mammals including fur-bearers. Concentrations of given species in favored habitat locations are well-known. The most conspicuous examples are nesting areas of waterfowl, some of which reach spectacular proportions.

Migration routes and favored resting places can result in heavy concentrations of transitory waterfowl during the autumn--enabling very intensive viewing or hunting activity in restricted areas during relatively short periods annually--and during the spring, allowing for intensive viewing. Total annual use, however, remains fairly low usually.

Wetland wildlife species in mating and nesting areas vary in the tolerance of human activity. This tolerance influences recreational capability ranking. Sound management to minimize disturbances due to intensive recreational use must be assumed.

Classification Criteria:

Wetland wildlife will frequently be a *dominant* feature in Classes 5, 6, and 7. It will occasionally be *dominant* in Classes 4, 3, and possible 2, where concentrations occur, or even 1 where it is supported by a strongly complementary feature or features. It may be a *subordinant* feature in any Class, but more normally in Classes 3 to 6 inclusive.

Class 2 - A wetland wildlife area could be sufficiently spectacular over a long enough season annually to warrant Class 2 ranking in terms of engendering intensive viewing and interpretive use, and be able to sustain this high level of use, given adequate management.

Class 3 - Class 3 ranking indicates an area where waterfowl regularly congregate in such numbers over long periods as will generage a high intensity of viewing and interpretive use, given management for this purpose.

Class 4 - Areas with viewing capability associated with spectacular concentrations of waterfowl in season, but with limitations on accessibility, length of season, or tolerance of the species to human activity, will merit Class 4. They may be those units which contain less outstanding concentrations of wildlife, but which are regionally significant and can engender and sustain fairly intensive viewing, interpretive and hunting or trapping activity. Generally includes the most outstanding waterfowl hunting areas in the region.

Class 5 - Units containing small but significant concentrations of wetland species with capability for interpretation and viewing, or more extensive areas with high capability for hunting or trapping activity, or combinations of features with comparable use capability, will merit Class 5.

Class 6 - Areas with moderately low to moderately high capability for waterfowl hunting, trapping, or wetland wildlife viewing.

Class 7 - Lands with little other capability for recreation than very mediocre waterfowl hunting, trapping, or wildlife study may warrant Class 7W.

Extensive water features at the Blanca Wildlife Habitat Area in the San Luis Valley would merit a Class 3 or 4 ranking for Subclass W.

Sweitzer Reservoir on Garnet Mesa near Delta illustrated the importance of setting in the determination of recreational capabilities. Extensive agriculture of the area coupled with a relativley flat terrain at the inlet contributes to good wetland wildlife viewing opportunities.

In this section of Little Yampa Canyon, a variety of riparian habitat, river islands, and the area's overall aesthetic attractiveness contribute to this ELU's capability for wildlife viewing. Ranking: 4 CAW.

Small and often enclosed streamside landscapes such as this corridor unit of beaver dams near Hot Sulphur Springs illustrates the common association of Subclasses M, W, Q, and E. Absent any significant fisheries, this ELU would likely rank 5 MWE or 4 QMW.

Though this beaver dam is rather small in scale, its presence and close association with the quaking aspen grove (E), the log cabins (H), and occassional wetland wildlife (W) combine to produce a relatively high capability: 4 QWE.

SUBCLASS X--
Miscellaneous

Land units having other miscellaneous features (not covered adequately in any other sub-class) having recreational capability.

A unit denoted by the X symbol represents an a recreational *feature* (not *activity*) not adequately covered by any other Subclass symbol. Appropriate explanatory notations are made in the Unit Resource Analysis overlay legend, a small-scale map narrative, and/or in the narrative itself.

SUBCLASS Z--
Man-made Features

Land units exhibiting permanent man-made non-urban features of recreational significance.

Characteristics:

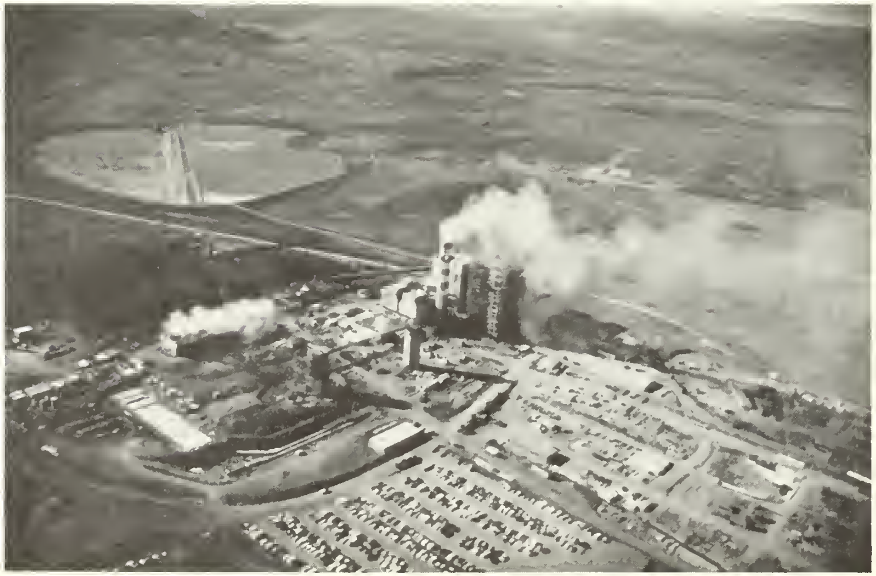
Surface coal mines, uranium mines, sawmills, hydro-electric or coal-burning power generating stations, and airports may have considerable recreational capability. The recreational interest in power generating stations stems from their human-interest value and is obvious; with other facilities, operations, or structures, the areas having this type of recreational capability may be viewpoints or overlooks. Area for car parking and supporting facilities is important. Associated activities may include industrial interpretation, outdoor education, general viewing, etc. In classifying these features, one must avoid the tendency to view them negatively,

Classification Criteria:

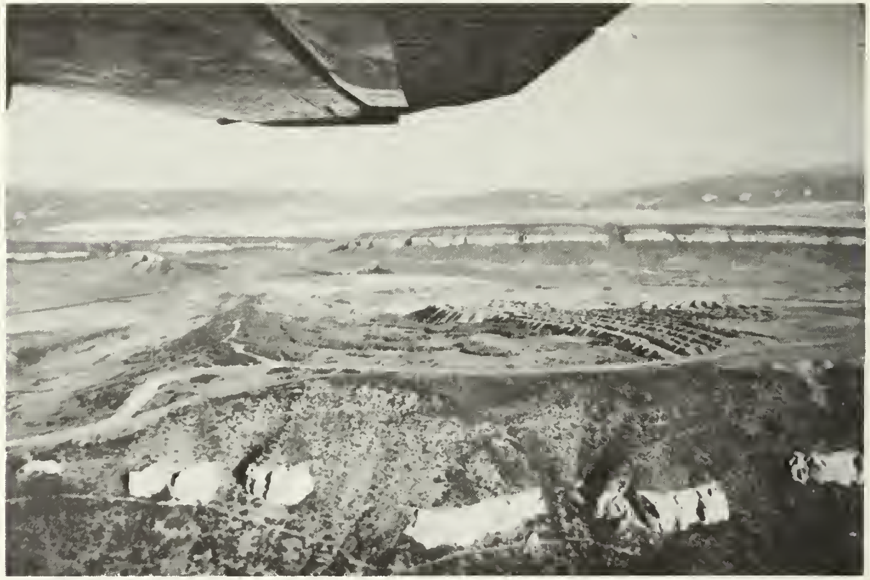
Class 2 - A major feature in the region offering superior viewing opportunities of the facility and operations, etc. In the case of a hydroelectric facility, the reservoir formed by the dam is, of course, classified for shoreland use, and often a useable shoreline in conjunction with the dam itself results in a combination of uses which may rank Class 1.

Class 3 - This Class includes such features as imposing surface mines and areas which offer an excellent overview of interesting industrial or mining operations in a rural setting. Examples include a spectacular open-pit or surface mine, such as at Craig's Colowyo Mine. In general, consideration is accorded to both the area (feature) and the situation (setting). Modern bridges which represent outstanding engineering or architectural accomplishments fit into this category, in a rural setting, if a sufficient area capable of development is available.

Classes 4-6 - Depending on the quality, the degree of interest, and the setting, a number of man-made structures can well be delineated. If the features are of no great significance, it is sufficient to draw a line around the site without changing the class. If, however, the feature is significant, and provides an additional focus (over and above the features of the larger surrounding unit), then its greater capability to attract and sustain use is reflected by a higher rating. In other words, the site is ranked one class or more higher than the region or general area that contains the site.



This coal-fired steam plant at Hayden is an example of a man-made feature that has relatively significant human-interest value, occurring in a scenic area of varied topography. Ranking 4 Z.



The Energy Fuels coal surface mine near Twentymile Park exhibits moderate to moderately high resource capability due to both its human-interest value and the aesthetic qualities of the setting in general. Ranking: 3 or 4 ZLO. The reclaimed spoil banks produce excellent browse for herds of elk resulting in significant wildlife viewing opportunities, especially in late winter in this area of high snowfall.

Hydroelectric facilities at the Blue Mesa Reservoir dam would rank 4 or 5 Z. Unsuitable shoreland units adjacent to the dam preclude a higher rating in association with shoreland features such as A, B, or D.

The Swinging Bridge in Browns Park is a small-scale suspension bridge that attracts local interest, likely ranking 5 ZAW or 4 AZW; lying within the Browns Park National Wildlife Refuge, and containing moderate to moderately high capabilities for fishing.

LANDSCAPE DESCRIPTIONS: —SECTION III

SOME OF THE MORE COMMON COMBINATIONS OF SUBCLASS FEATURES AND RESOURCE ATTRIBUTES HAVE BEEN ASSEMBLED IN TABLE FORM IN THIS SECTION TO ASSIST IN THE CONSISTENT APPLICATION OF THE CRITERIA CONTAINED IN THE FOREGOING SECTION. THIS TABLE IS NOT MEANT TO BE EXHAUSTIVE, BUT SHOULD SERVE AS AN AID, COUPLED WITH THE PHOTOS, TO PROVIDE A MORE OBJECTIVE FRAME OF REFERENCE FOR THE CLASSIFIER.

Landscape Descriptions

The Classification Criteria in Section II of this manual describe overall resource attributes of the land and specific recreation features as well. Those in the former category (i.e. resource attributes) include Subclasses E (vegetation), L (landforms), M (water bodies), P (pastoral/cultural), R (rock formations), and especially Q (topographic configuration); these may only indicate physical, aesthetic, or human-interest attributes providing capability for rather extensive use. Those in the later category include a number of Subclasses such as A (fisheries), C (river units), H (historic/archeologic), K (support units), O (upland wildlife), or W (wetland wildlife), and they indicate particular recreation capabilities associated, often for intensive as well as extensive use.

The resource attributes commonly occur by themselves, or even singly; in associations such as this, they are merely general landscape descriptions. However, these landscape descriptions often occur in association with specific recreation features.

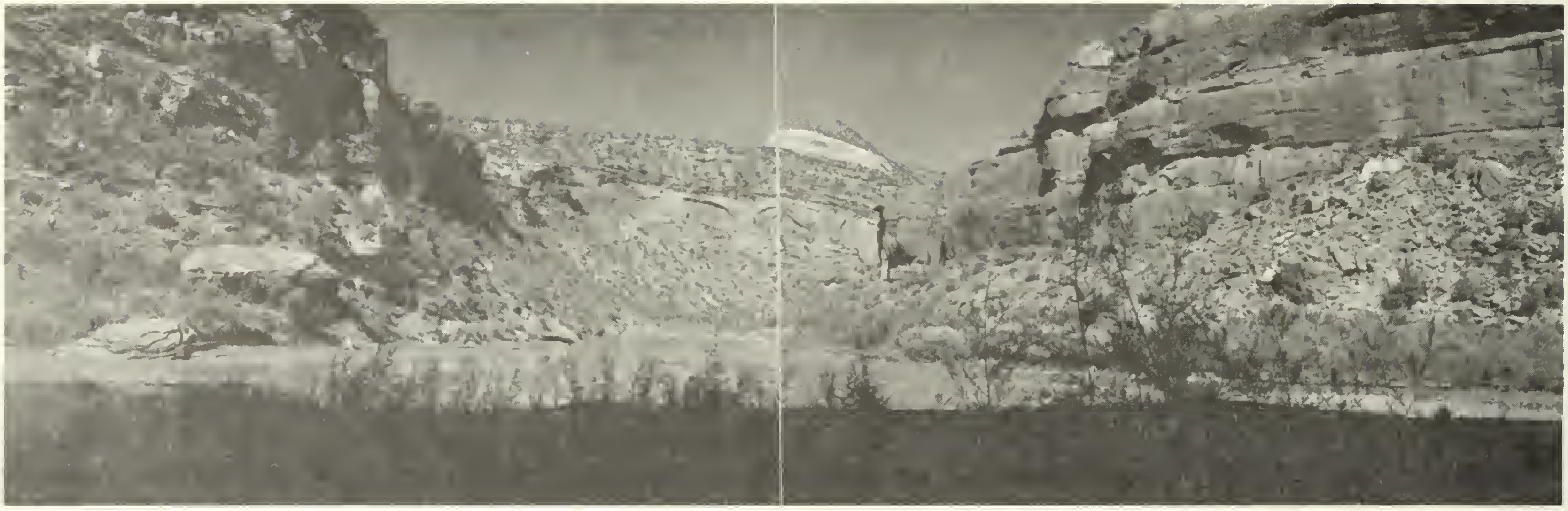
In either case, there are seemingly an infinite number of possible Subclass combinations to describe such landscapes. Experience has shown that some additional guidance is necessary to maintain consistency in classification. This section contains an expanded table of landscape descriptions common to the public lands plus several illustrative landscape photos; these landscapes most often have capability to generate low intensities of use on the dispersed end of the Capability Class scale (see Section I, Basis for Classification of ELUs).

The table should be used in rating the ELUs as a supplement to, but not as a replacement for, the actual Classification Criteria in Section II.

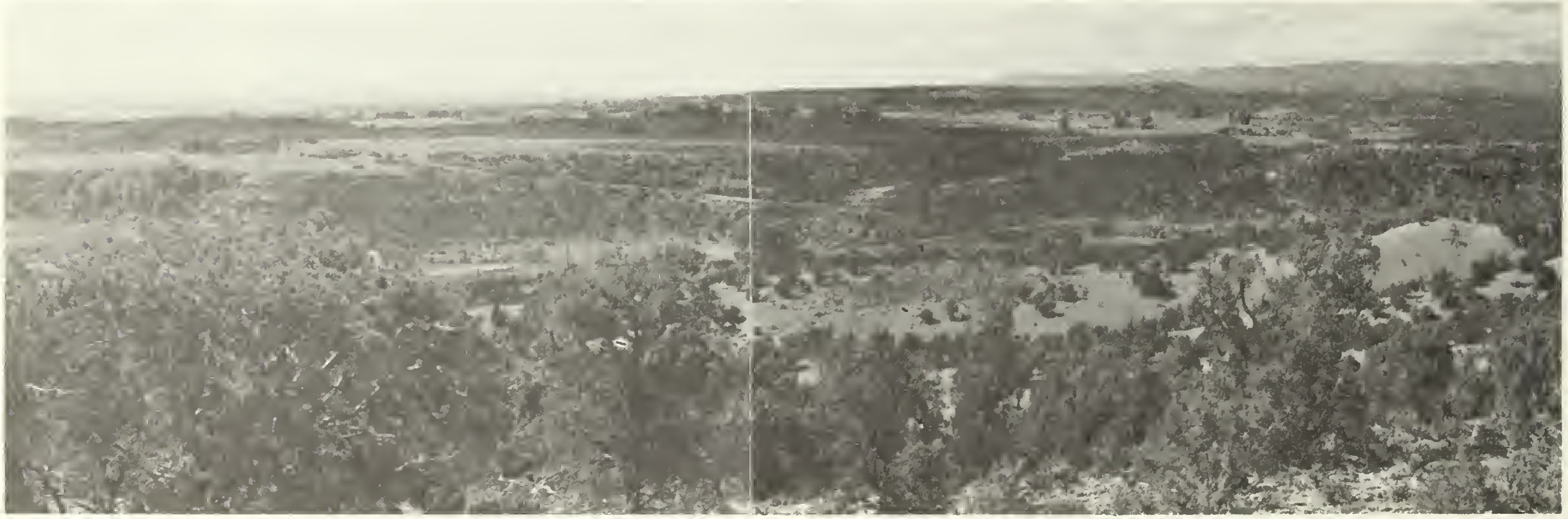
CAPABILITY CLASS	RESOURCE ATTRIBUTE AND/OR FEATURE ASSOCIATION	LANDSCAPE TYPE
	Streams and Rivers	
4, 5	AOE, AOM ACO, WAC	Relatively linear or corridor units without the K feature indicates poor support capability due to soil and water limitations such as flood plains and poor drainage areas. These units are often very attractive and have good capability to attract and sustain a variety of activities including fishing, viewing, hunting, and hiking.
5, 6	QMO, MQW QME	Relatively linear units with limited capability for picnicking, hiking, and viewing. Valley walls are steep and water is isolated largely by the rugged terrain. Opportunities for fishing and hunting are limited.
4, 5	LVR	Corridor units with this classification indicate canyons commonly accompanied by good viewing opportunities, interesting rock formations, etc.; however, access to stream or river features appears difficult.
4	QAW	Especially diverse landscapes providing frequent viewing opportunities, in a streamside environment or riparian landscape. Contains an abundance of beaver dams with accompanying excellent fishing and good opportunities for wetland wildlife viewing.
4	EPA	Irrigated meadows in a floodplain landscape with particularly attractive stands of trees occurring in park-like distribution, and fronting rivers or streams having moderate to high capability as a recreational fisheries.

4, 5	CAW	Riparian landscapes providing river access to relatively long stretches of water having good to moderate capability for river running, fishing, and wildlife viewing opportunities. These features in this landscape may also occur in close association with other features such as E, O, and H having lesser though yet significant recreational capabilities. In some instances, the collective array of such features will warrant raising the landscape's rating to Class 4.
	Shorelands	
4, 5, (3)	ACQ ADQ AQE	The K feature is absent, generally indicating that intensive use of the shoreland should be discouraged. Support activities, such as camping, could be a problem due to the small size of the land unit, unsuitable landforms, or sensitive and unstable soils. Opportunities for fishing, river running, boating, and viewing would likely be good.
5, 6	MOW WOM QMO	Small or shallow lakes with no known sport fisheries, limited canoeing or boating capability, some opportunities to view fur bearers and shorebirds, etc. Common classification for small and/or marshy lakes.
	Upland Areas	
4, 5	QVE VQE	Flat to rolling terrain with opportunities for hiking and riding with few limitations to foot travel and ground access. Vegetation is attractive and excellent opportunities exist for viewing and associated activities.
5	QE	Areas with varied topographic patterns with some opportunity for extensive recreation. Small areas of level to hilly terrain in an otherwise steep mountainous region, areas of hilly terrain, or ridges in a region otherwise flat and monotonous.
5, 6	QVL, LVR VGR	Bold, scenic, mountainous uplands. Usually associated with or consisting of extensive badland landscapes, but with good viewing opportunities, and also occurring in association with interesting rocks and/or geologic formations.
4	QEO	Areas dominated by landscape diversity, offering frequent good viewing opportunities, and supporting a variety of activities. Often occurs in association with a variety of especially attractive vegetation such as quaking aspen, Douglas-fir, and scrub oak. Good opportunities exist for big game hunting and other wildlife viewing.
4	QOR	Rather diverse landscapes offering especially good viewing and hunting opportunities. Predominantly on southerly-exposed slopes where vegetation is scattered and rocky outcrops are most numerous.
5	QER	Areas of natural landscape diversity that have one or more major woodland or forest species, often in park-like configuration, and in association with numerous rock formations and outcrops.
4	RQE	Areas of very diverse topography offering frequent good viewing opportunities and a variety of activities associated with this landscape. The area is dominated by numerous and often very colorful and scenic rimrock ledges; this landscape is complemented by scattered stands of often, but not necessarily attractive, woodland or forest species.

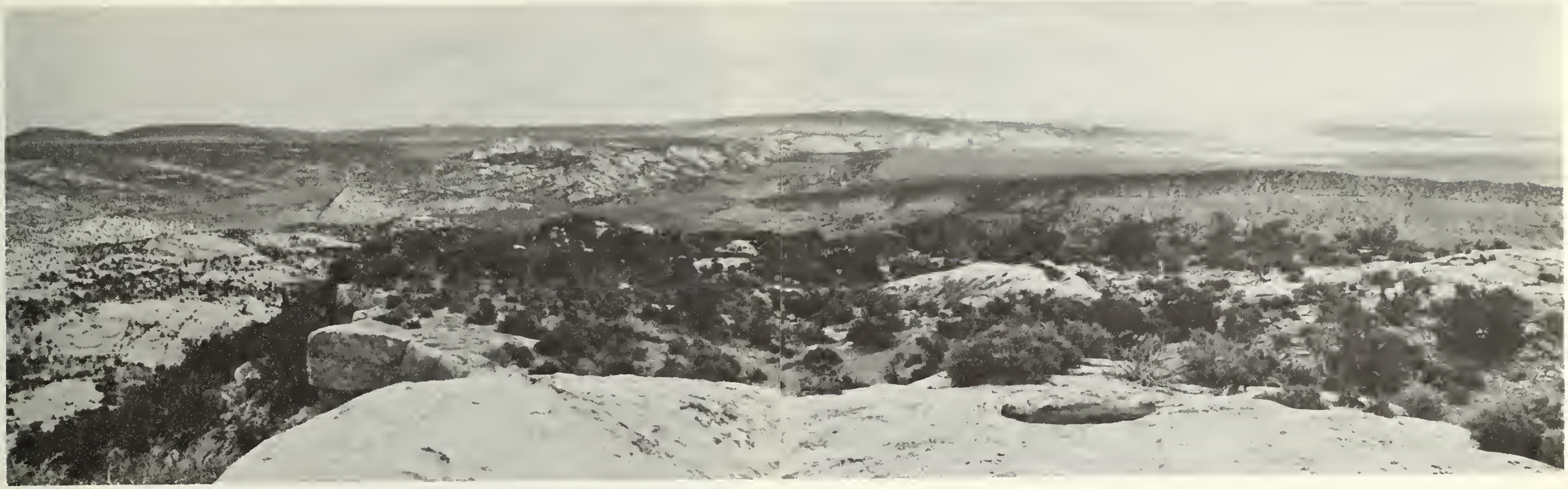
5	RQ	Areas still dominated by landscape diversity, but less varied than in the above example. Rock features and/or geologic formations dominate this landscape which may be especially attractive, but presents significant obstacles to its use such as extremely steep slopes. Includes very large-scale sections of exposed geologic formations such as the walls of breached anticlines,etc.
6	QEO	Areas of subdued topography that have fairly uniform stands of woodland species, such as pinon-juniper, etc. Here, wildlife hunting and viewing opportunities are only relatively moderate to low. Examples include rather flat to rolling pinon-juniper mesas and benches.
6	QE	Extensive areas of monotonous terrain with low capability for recreation use. e.g. extensive and rolling pinon-juniper or other woodlands.
5	QN	Rather extensive uplands providing varied dispersed activity opportunities, both summer and winter, having good snow depth and a relatively long winter use season.
5	L	Extensive but somewhat diverse landforms such as adobe hills and wasteland, in an attractive setting having moderately low capabilities due to erosive or unstable soils, etc.
6, 7	OE	Extensive monotonous terrain with very low recreation capability; occassional hunting or wildlife viewing opportunities.
5	PQN	An attractive cultural landscape such as extensive farmlands and/or irrigated meadows, often in a varied landscape including interspersed areas of natural terrain. These areas also have good snow depth for relatively long seasons, supporting a variety of dispersed activities.
2, 3, 4, 5	EVM EVQ	Attractive and varied vegetation, excellent viewing, and a varied landscape with surface water (EVM) or without surface water (EVQ) such as streams, ponds and small lakes.
2, 3	EVM EVQ	Outstanding scenic areas with mountain viewing, excellent photography, hiking, and/or riding opportunities. Especially most common in alpine areas.
4, 5	EVM EVQ	Attractive basins or plateaus suited to hiking, riding, and hunting. Good viewing opportunities, moderate access limitation, *or* attractive benches, mesas, or rolling terrain containing mixed grassland and woodland species such as ponderosa and sagebrush types, rocky grassland and pinon-juniper, Douglas-fir and aspen, etc.



Location: *Dolores River, Uravan*
Description: *4 RCQ*

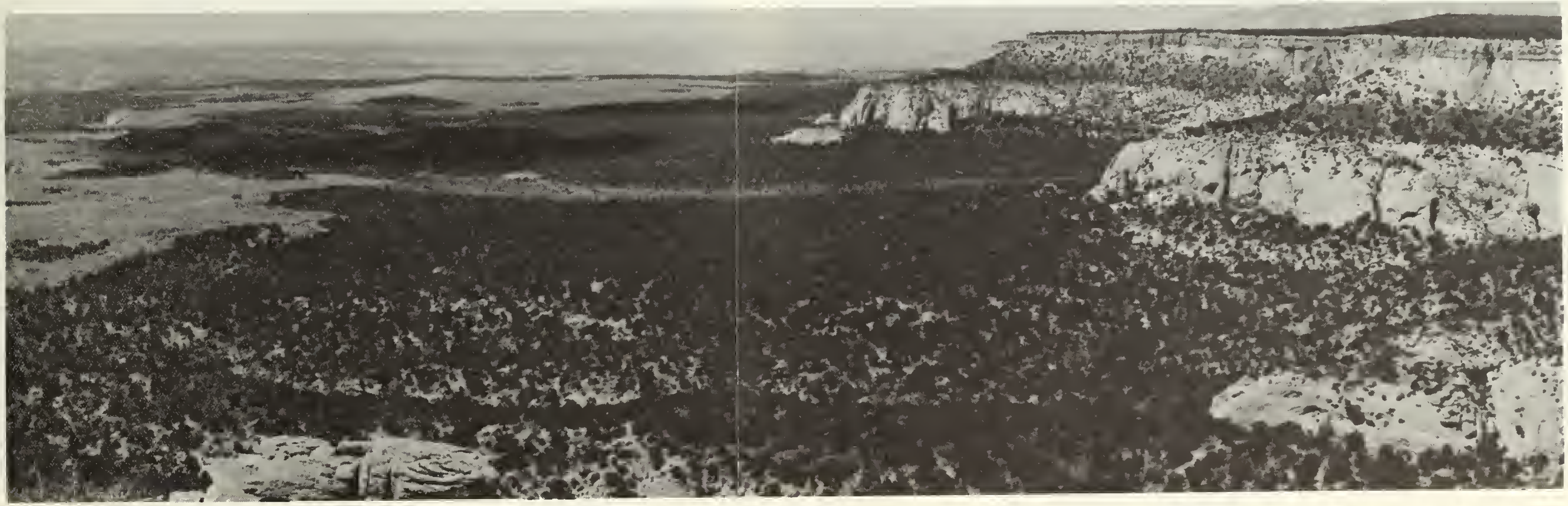


Location: *Nucla*
Description: *5 QEP*



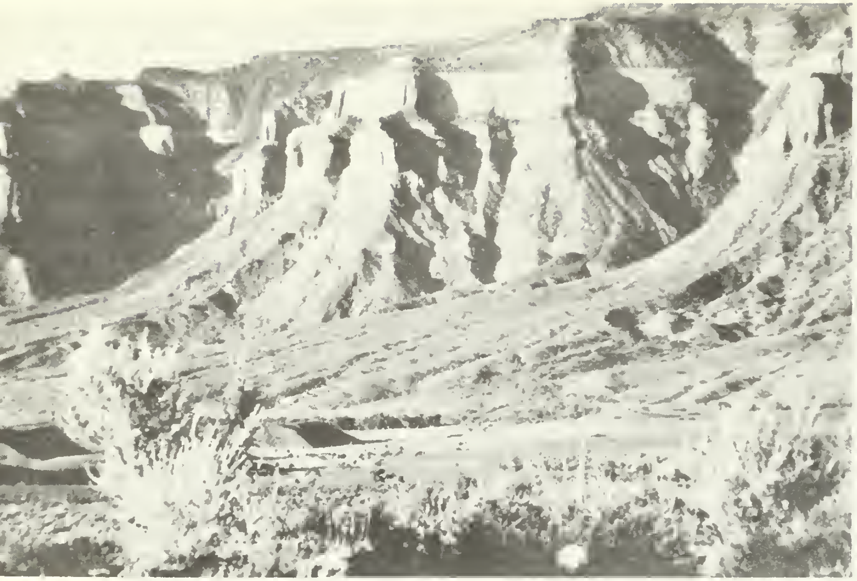
Location: *Blue Mountian/Massadona*

Description: *Distant terrain on the right--6 Q*
Foreground--5 QER
Hogbacks and Cuestas in central middleground--4 QRE
Basin interior on left--6 QE
Basin rim--5 RQ

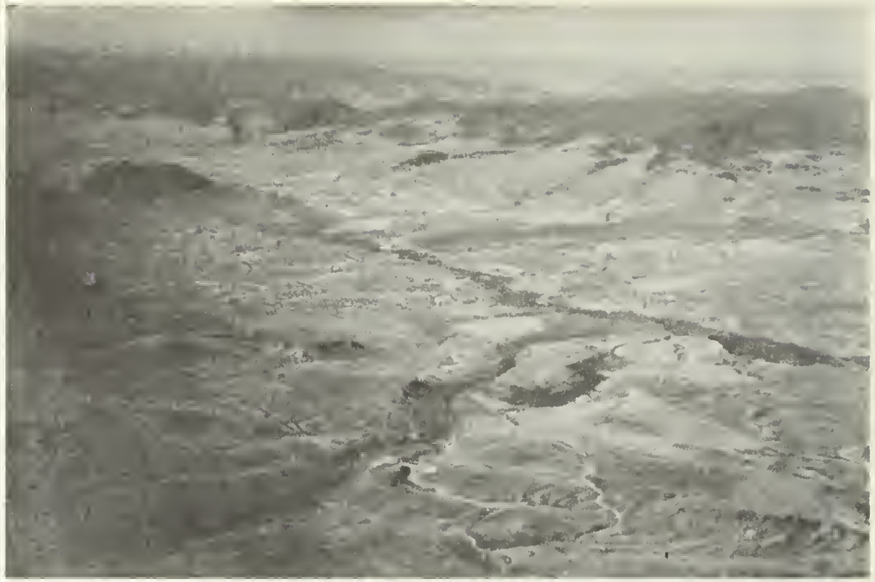


Location: *Skull Creek*

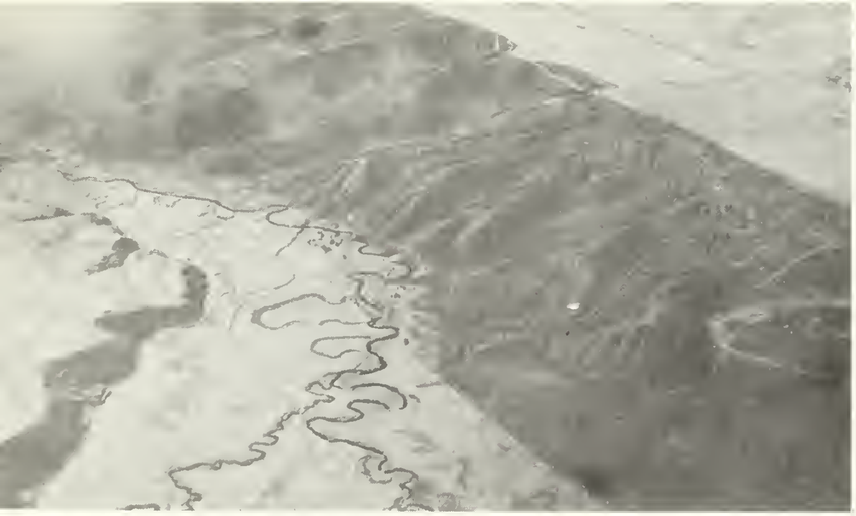
Description: *Rimrock--4 RQE*
Pinon-juniper bench--6 QE



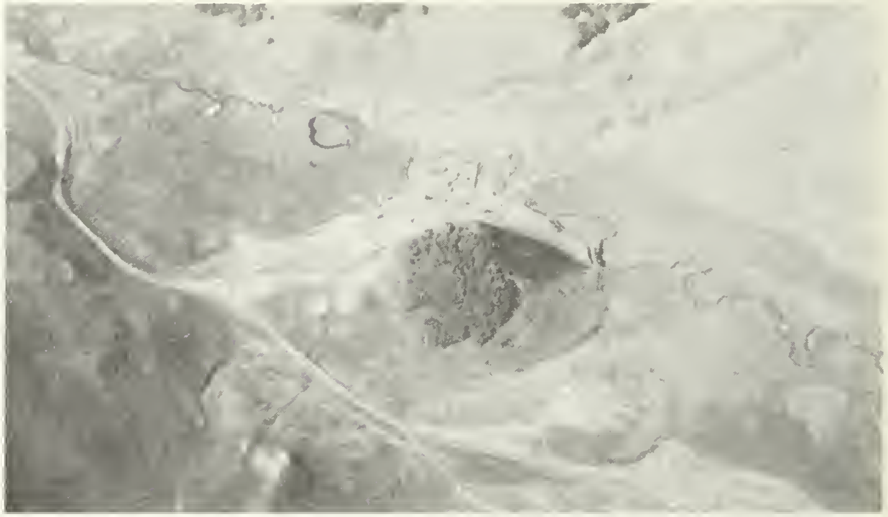
Location: *Roan Cliffs, DeBeque*
Description: *Cliffs--5, 6 QRE*
Toe of slope--6 Q



Location: *Muddy Creek, Kremmling*
Description: *Undulating rangeland--5 Q*
Muddy Creek unit--5 or 6 P, or 5 MAW
Wolford Mtn (upper left)--4 QON and 4 EVO



Location: *Twentymile Park, Steamboat Springs*
Description: *Trout Creek--5 APW*
Hillside--5 QEO
Farmland--5 PNQ



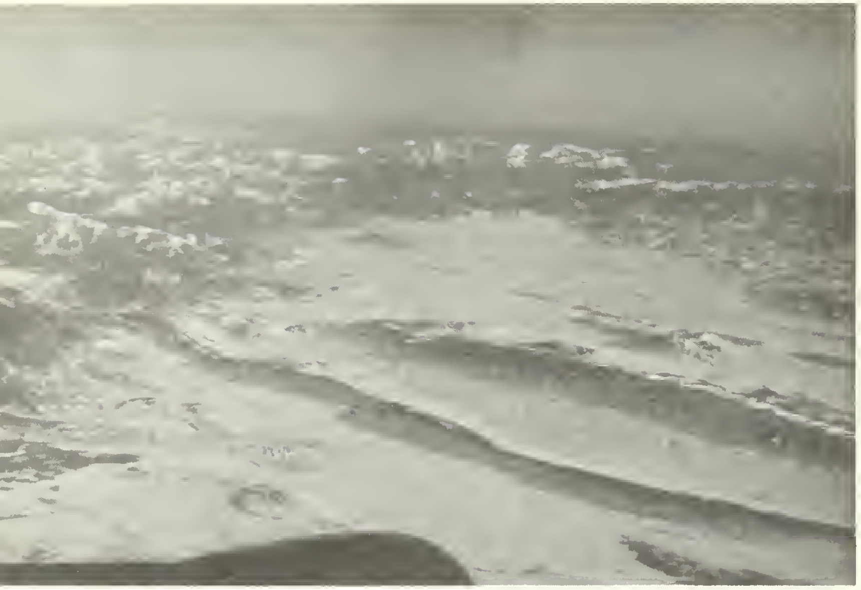
Location: *Muddy Creek, Kremmling*
Description: *Upper right--5 Q*
Floodplain--5 P
Small mountainside--6 O
Stream in lower left--5 MW

Location: *Coyote Basin--Strawberry Creek, Meeker*
Description: *Farmland and meadows--5 PON*
Adjacent mountainsides--5 QE

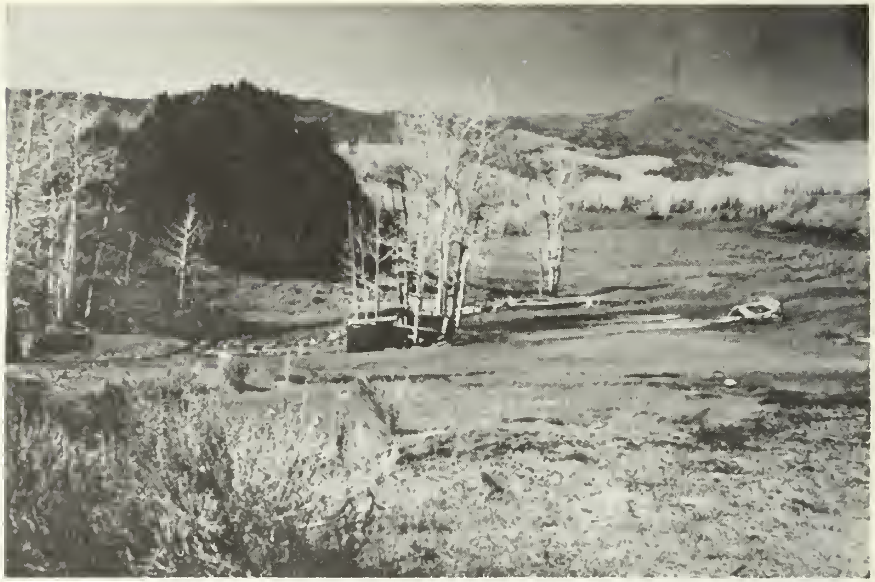
Location: *Blue Mesa Reservoir, Gunnison*
Description: *Mesa tops opposite the reservoir--5 QON*
Undulating terrain, both sides of reservoir--6 Q
Rock outcropping of West Elk Breccia--3 VRO, 4 ROQ
Forested area in background--4 QEO

Location: *San Miguel Planning Unit, Norwood*
Description: *4 QEO*

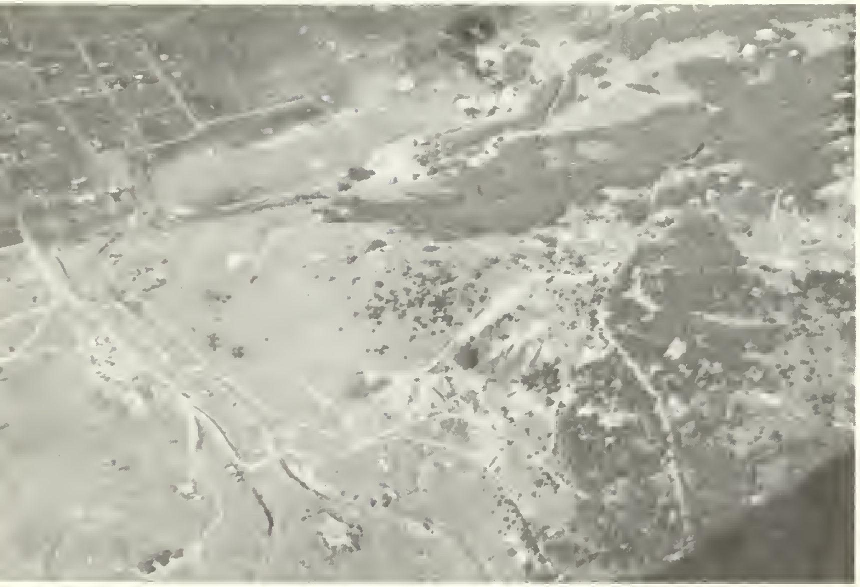
Location: *Montrose*
Description: *Left--5, 6 L*
Center--5 QEO
Right--5 PO



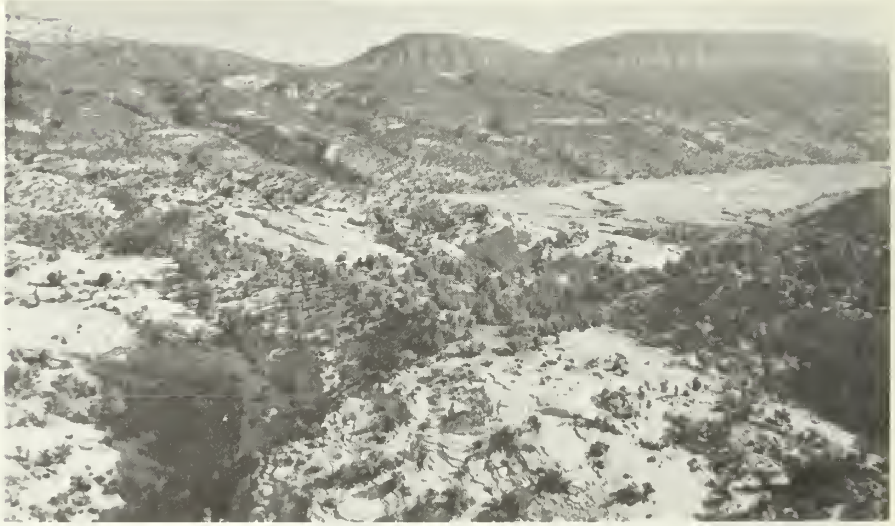
Location: *South Park, Fairplay*
Description: *Red Hill and Reinecker Ridges--5 QEO*
Valley floor--6 Q, 6 QO, 6 PQ, and 5 P



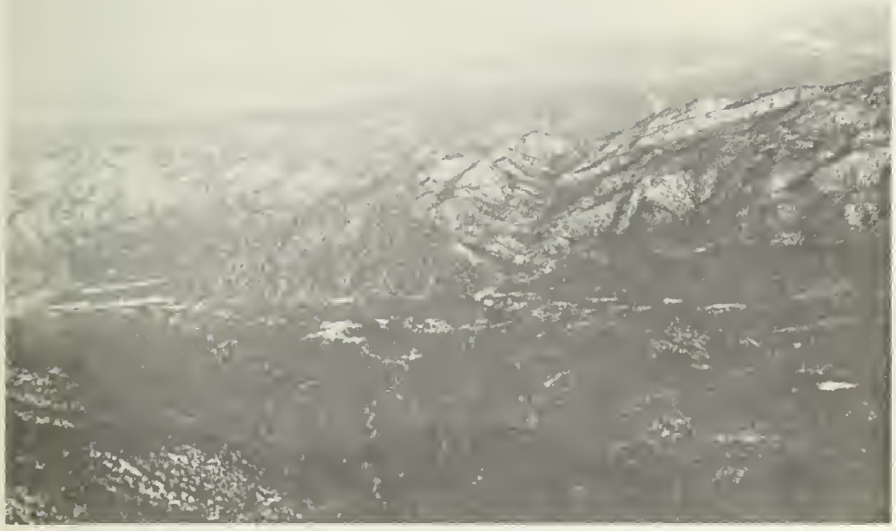
Location: *Blacktial Mtn., Oak Creek*
Description: *Foreground--4 ERH*
Middleground--4 QEO



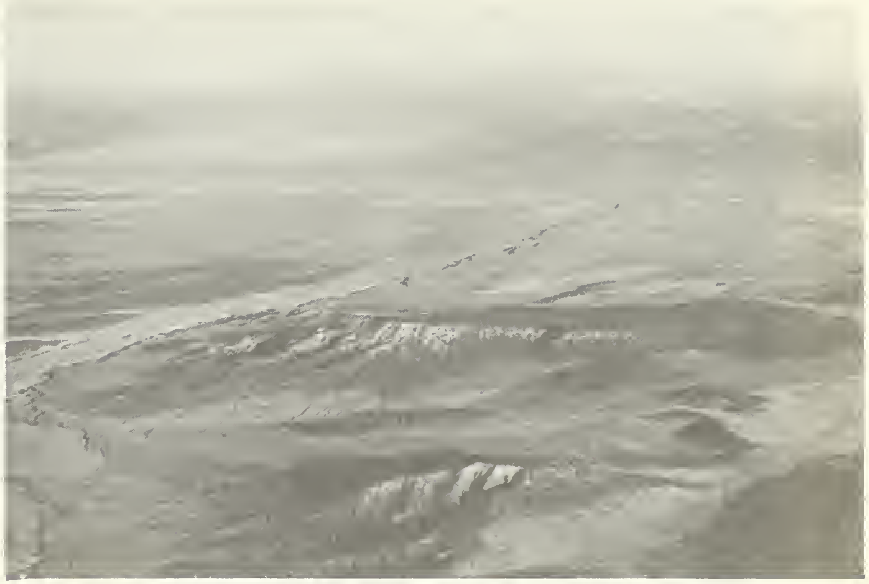
Location: *Squaw Mtn., Victor*
Description: *3 HQZ*



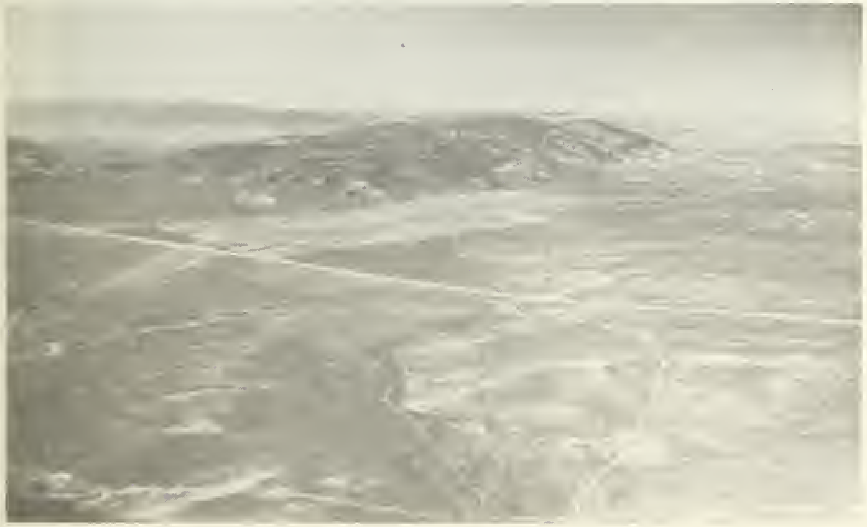
Location: *Skull Creek*
Description: *Canyon/rocks in foreground--4 RQ/3 RQE*
Alluvial floor--6 Q, 6 LQ
Pinon-juniper benches--6 QE
Rim on horizon--5 RQ, 5 RQO



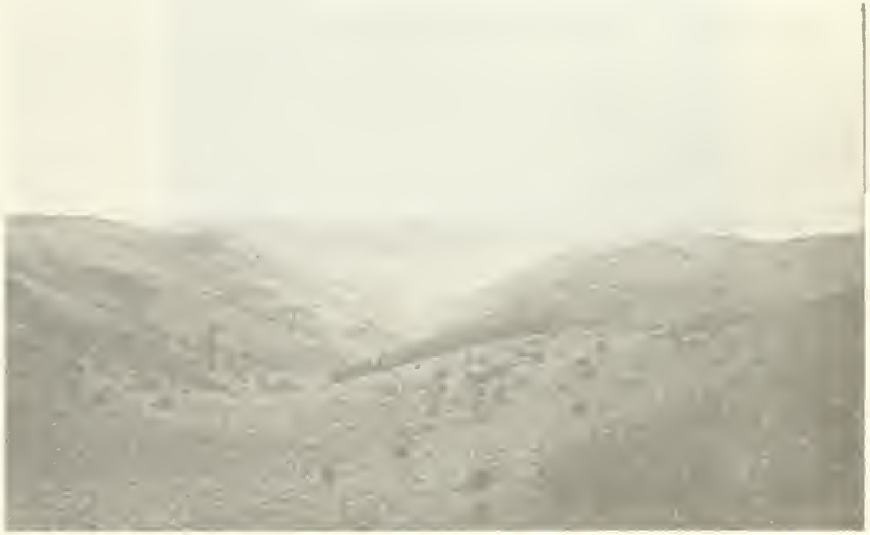
Location: *Echo Canyon, Canon City*
Description: *6 QE*



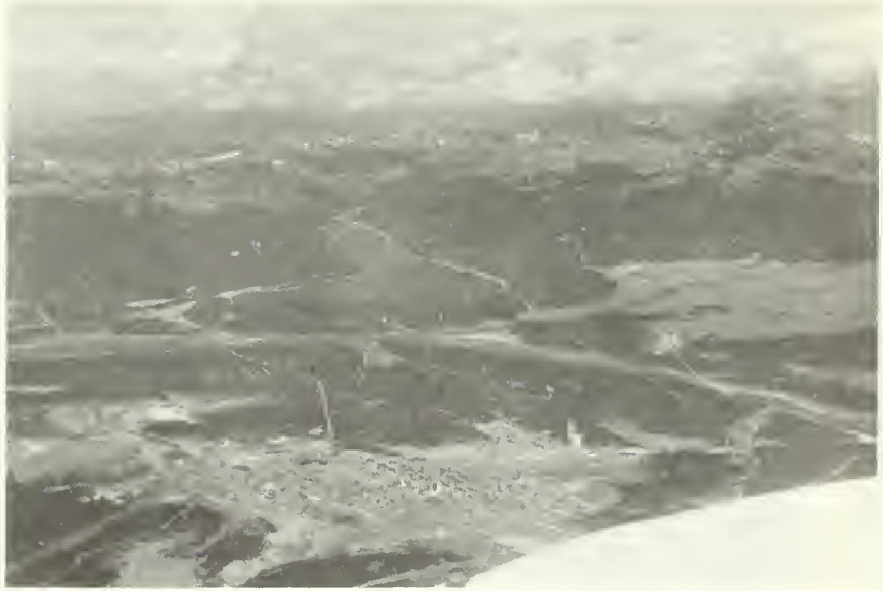
Location: *Spring Creek Basin*
Description: *Foreground--5 QE, 5 QEO*
Middleground--6, 7 Q



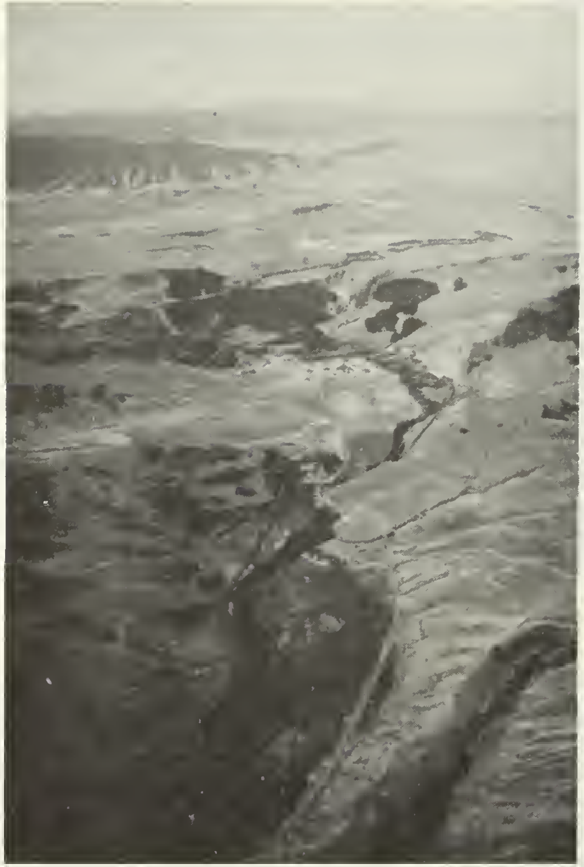
Location: *Cross Mtn. Canyon, Maybell*
Description: *Cross Mtn.--5 QEO*
The canyon itself--4 RMO
Farmland--5 PO
Undulating foreground--6 Q



Location: *Piceance Basin, Meeker*
Description: *6 Q, 6 QP*



Location: *Turquoise Lake/Leadville*
Description: *Foreground--urban*
Turquoise Lake shoreland units--4 ADB
Adjacent forest--5 QE
Park (right-hand side)--5 PN
Upper Arkansas River (central)--4 AN



Location: *Upper Colorado River, Hot Sulphur Springs*
Description: *Foreground floodplain--4 APW*
Foreground rangeland--5 Q
Adjacent drainages--5 MAW
Byers Canyon--4 RO
Distant mountains--5 QEO

Location: *Red Wash, Blue Mtn.*
Description: *4 RQE*

Location: *Mount Harris, Hayden*
Description: *Mountainside--4 QEO*
Meadow--5 PON

PORTIONS OF THE RECREATION CAPABILITY CLASSIFICATION FOR THE IDENDIFICATION OF ACTIVITY OPPORTUNITIES ARE SET FORTH IN THIS SECTION. APPENDIX A-1 REFERENCES A PORTION OF THE MAYBELL AND LITTLE SNAKE PLANNING UNITS AT A SCALE OF ONE-HALF INCH PER MILE. APPENDIX A-2 REFERENCES A PORTION OF THE RANGELY PLANNING UNIT MAPPED IN TWO SECTIONS AT A SCALE OF ONE INCH PER MILE; THESE MAPS ALSO ILLUSTRATE SETTING OPPORTUNITY CAPABILITY CLASSIFICATIONS. THIS SECTION OF THE APPENDIX ALSO INCLUDES PHOTOGRAPHS THAT ILLUSTRATE A PORTION OF THE APPENDIX A-2 MAPS. THE ACTUAL MAPS FOR APPENDICES A-1 AND A-2 ARE WITHIN THE MAP ENVELOPE AT THE INSIDE BACK COVER OF THIS HANDBOOK.

APPENDIX B OUTLINES A CONCEPTUAL FRAMEWORK AND A BRIEF SECTION ON CLASSIFICATION PROCEDURES FOR THE RECREATION OPPORTUNITY SPECTRUM (ROS) SYSTEM. THESE ARE DRAFT PROCEDURES WHICH WILL BE MORE FULLY DEVELOPED AND EXPANDED AS THE ROS BECOMES FULLY IMPLEMENTED. THIS SECTION ALSO EXPLAINS HOW THE ELU RCC FITS WITHIN THE OVERALL CONTEXT OF THE ROS.

APPENDIX C MERELY CONTAINS PORTIONS OF THE SOIL INTERPRETATION CHARTS FOR BOTH SOIL SERIES AND ASSOCIATIONS, INDICATING THE PARAMETERS DISPLAYED.

APPENDIX D CONTAINS THE BIBLIOGRAPHY.

APPENDICES: —SECTION IV

APPENDIX A-1

Recreation Capability Classification for portions of the Little Snake and Maybell Planning Units, Little Snake Resource Area, Craig District. This map depicts Activity Opportunity (AO) capabilities as outlined in Sections I through III of this handbook and classification manual. See Appendix B for a narrative explanation of the relationship of AO identification to the overall Recreation Opportunity Spectrum (ROS) concept.

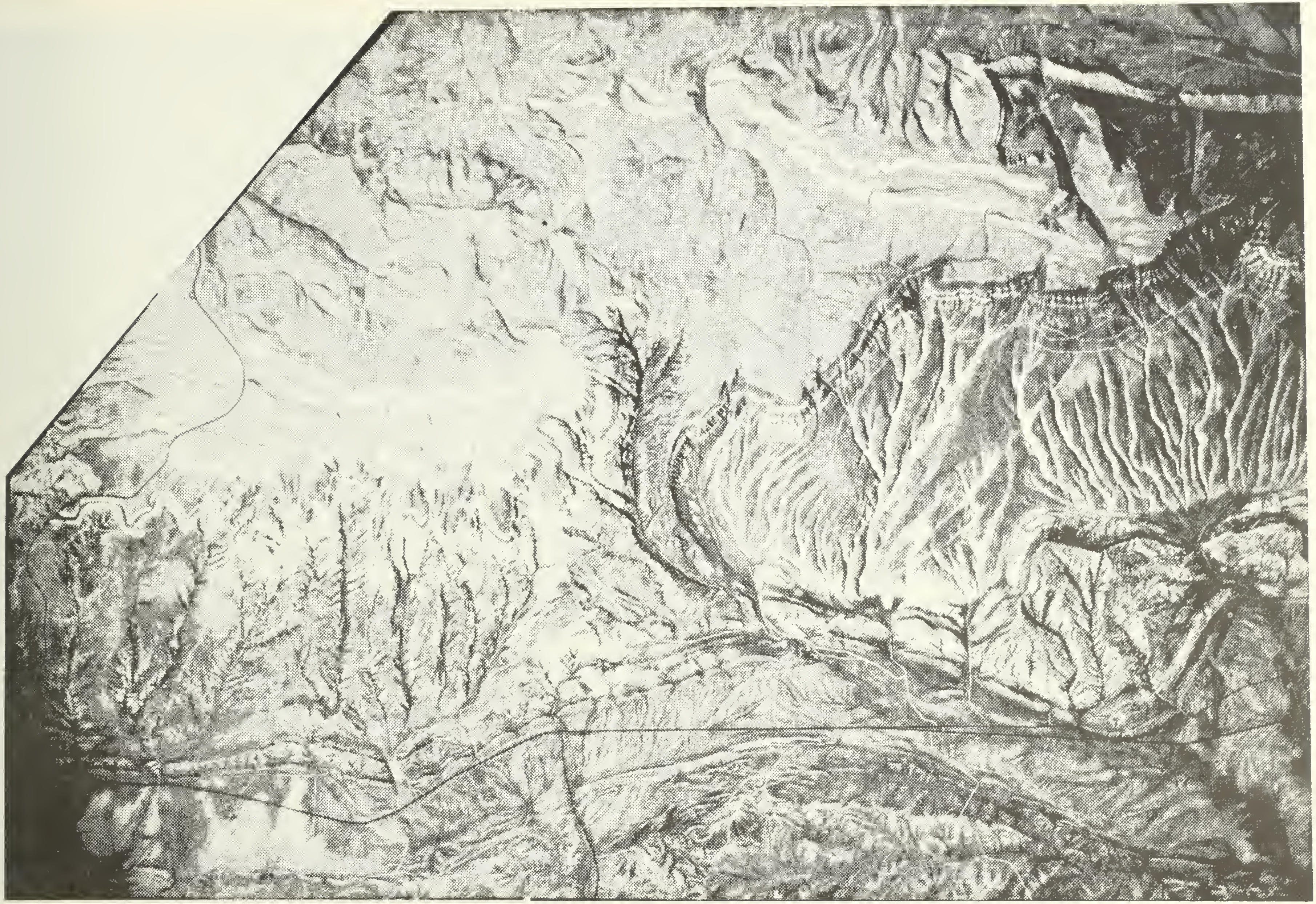
This is a foldout map and is included in the map envelope in the inside back cover of this handbook.

APPENDIX A-2

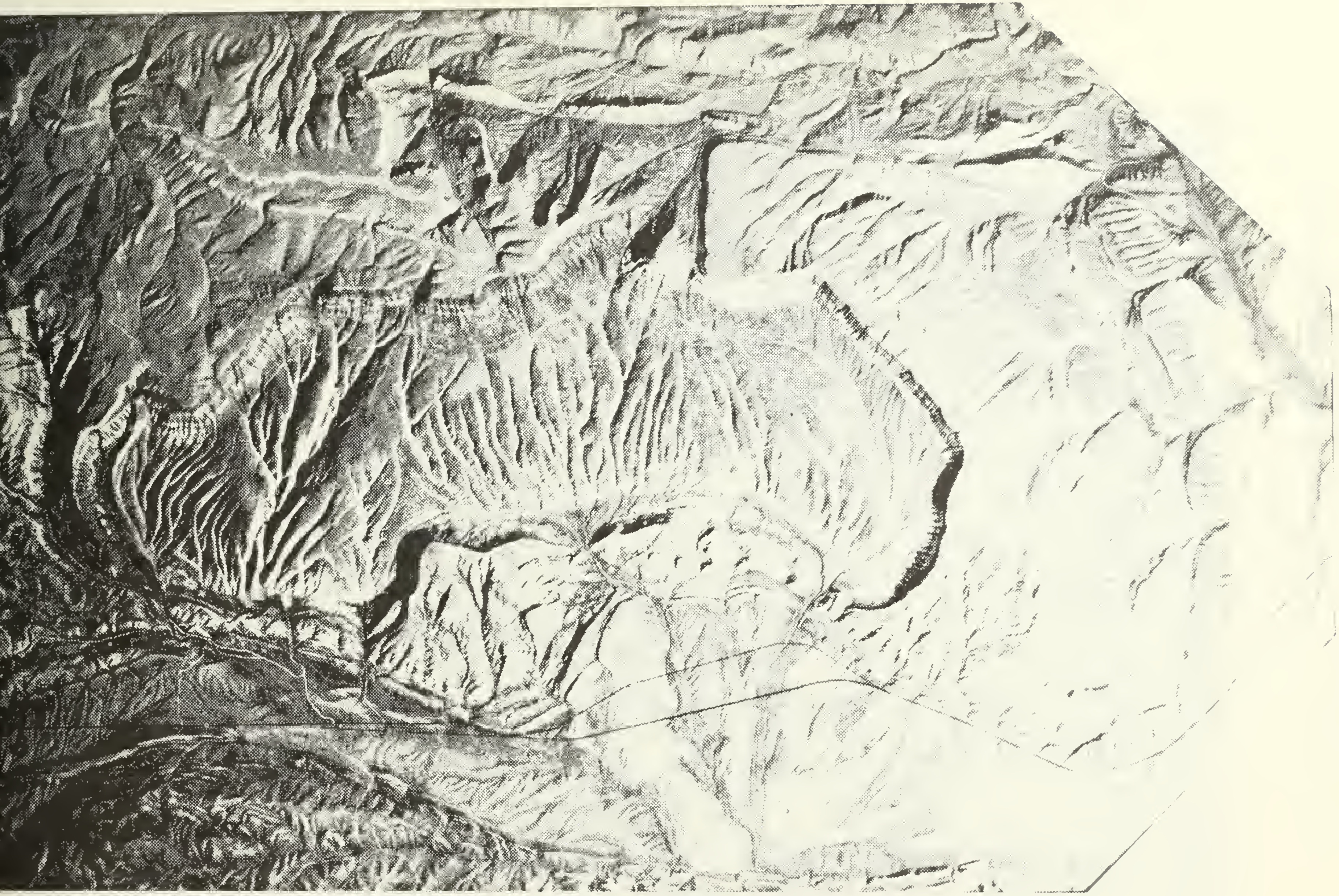
This Appendix illustrates completed Recreation Capability Classifications for the northern one-half of the Rangely Planning Unit, White River Resource Area, Craig District. Three photos are included in this Appendix section illustrating that portion of the planning area having the greatest landscape diversity, variety of recreation features, and significant aesthetic and human-interest values.

The area illustrated by these photographs is mapped on a two-section foldout map included in the map envelope in the inside back cover of this handbook (see legend on foldout map). The third photo also illustrates both Activity Opportunity and Setting Opportunity capability classifications in oblique view.

On the two-section map foldout and the third photo, Activity Opportunities (AOs) are depicted in black and Setting Opportunities (SOs) in red. See Appendix B for explanation of both AO and SO classification within the overall framework of the Recreation Opportunity Spectrum (ROS).



Western portion of the Skull Creek Basin area including the NPS access road on the left, Moosehead mountain and Lazy Y Point located centrally, and the western portion of the Basin proper on the right. U.S. Hwy. 40 traverses the area at the bottom of the photo.



Partly overlapping the previous photo, this illustrates the Skull Creek Basin proper. Portions of the Wolf Creek drainage appear in the top portion of the photo. This photo more nearly portrays the anticline as a whole.

This oblique photograph depicts the eastern portion of Skull Creek Basin (see foldout map in this section of the Appendix).

The red overlay outlines Setting Opportunity (SO) Capability Classes and was developed using the classification criteria in Table 1, Appendix B. Remember that the classification of SO capabilities is made using only criteria for the Physical Setting; criteria for Social and Managerial Settings is applied, along with the Physical Setting criteria, to depict existing SOs (see also Setting Opportunity Classification Procedures and Guidelines in Appendix B).

The black overlay outlines Activity Opportunity (AO) capabilities and was developed using the classification criteria in Section II of this Handbook and Classification Manual.

LEGEND

Setting Opportunity (SO) Classes

P = Primitive
SPNM = Semi Primitive Non-Motorized
SPM = Semi Primitive Motorized
RN = Roaded Natural
SU = Semi Urban
U = Urban

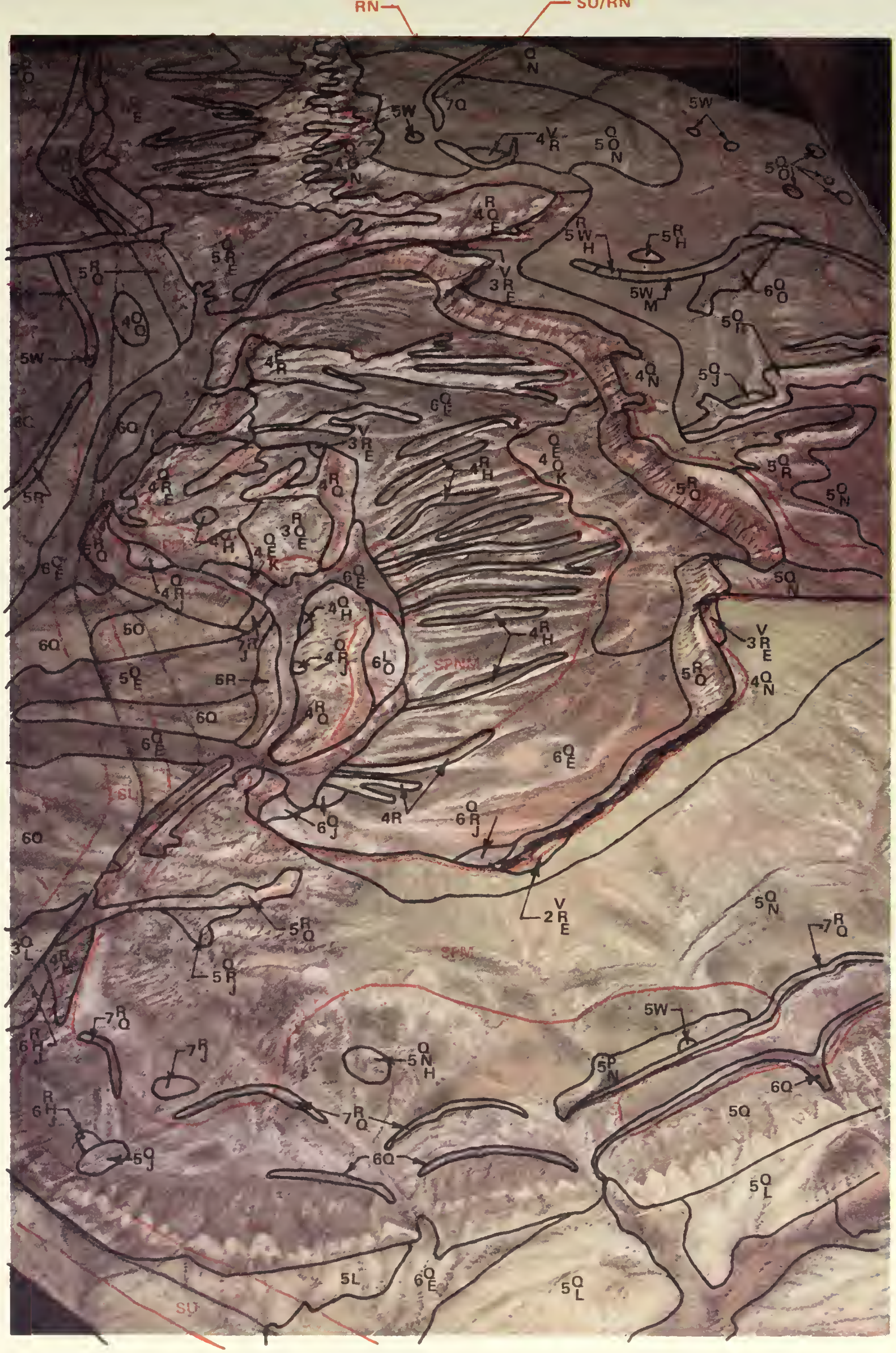
Activity Opportunity (AO) Classes

Class: Capability ---- Subclass

Intensive Activities --
1 : Very High
2 : High
3 : Moderately High

Dispersed Activities --
4 : Moderate
5 : Moderately Low
6 : Low
7 : Very Low

A-Recreational Fisheries
B-Beaches
C-River Access Units
D-Deeper Water Units
E-Vegetation
F-Waterfalls & Rapids
G-Glaciers/Permanent Snowfields
H-Historic/Archeologic
J-Collectable Rocks, etc.
K-Support Units
L-Landforms
M-Small Surface Water Units
N-Extensive Winter Upland Units
O-Upland Wildlife
P-Cultural Landscapes
Q-Topographic Configuration
R-Rock/Geologic Formations
S-Winter Upland Units
T-Thermal Springs
V-Vantage Points
W-Wetland Wildlife
X-Miscellaneous
Z-Man-made Features



Setting Opportunities (SOs) ———
Activity Opportunities (AOs)———

Note: Although the landscape detail represented here is not characteristic, this photo is included to illustrate the resulting variety of Activity Opportunity capabilities.

APPENDIX B

This section of the Appendix contains a Conceptual Framework and a brief narrative on practical application of the Recreation Opportunity Spectrum (ROS) system. The Bureau of Land Management is committed to implementation of the ROS; it is scheduled for Bureau-wide implementation in FY 81. This section is included to help set the ELU RCC in the overall context of the ROS, and to allow for immediate in-field application of the whole system. Rather broad guidelines are set forth within a flexible framework to allow for amendments, deletions, and additions as the state of the art develops through field-testing and implementation.

Sections included are:

Introduction
Conceptual Framework
Application
Setting Opportunity Classification Procedures and Guidelines
Capacity Determination
Overall Relationship to Land Use Planning

Also included are two graphics which illustrate the Recreation Opportunity Spectrum in a supply/demand planning framework and within the context of Recreation Opportunity Allocation Planning. These have been especially helpful to see each component of the ROS in total persepctive.

Introduction

Traditionally, natural resource recreation planning has dealt primarily with recreation activities; this approach has tended to encourage evaluation of both the resource and user demands solely in terms of Activity Opportunities. Planners have not fully recognized any other dimension of Recreation Opportunities, and as a result, have tended to nurture the idea that maximum benefits could be achieved by providing an adequate amount and variety of resources capable of satisfying the user's Activity Opportunity preferences.

However, more recent applied recreation research has determined that users also exhibit demands or preferences for various settings, psychological outcomes or states of mind, and for long-term benefits. In this context, " recreation is defined not as an activity, or the behavior of participating in a recreation activity, but instead as an intrinsically, or self, rewarding experience that finds its source in voluntary engagements (sensory, mental, and/or physical) during non-obligated time."[1] The experience results from engaging in various Recreation Opportunities, and each Recreation Opportunity has several components corresponding to the different types of preferences which users exhibit.

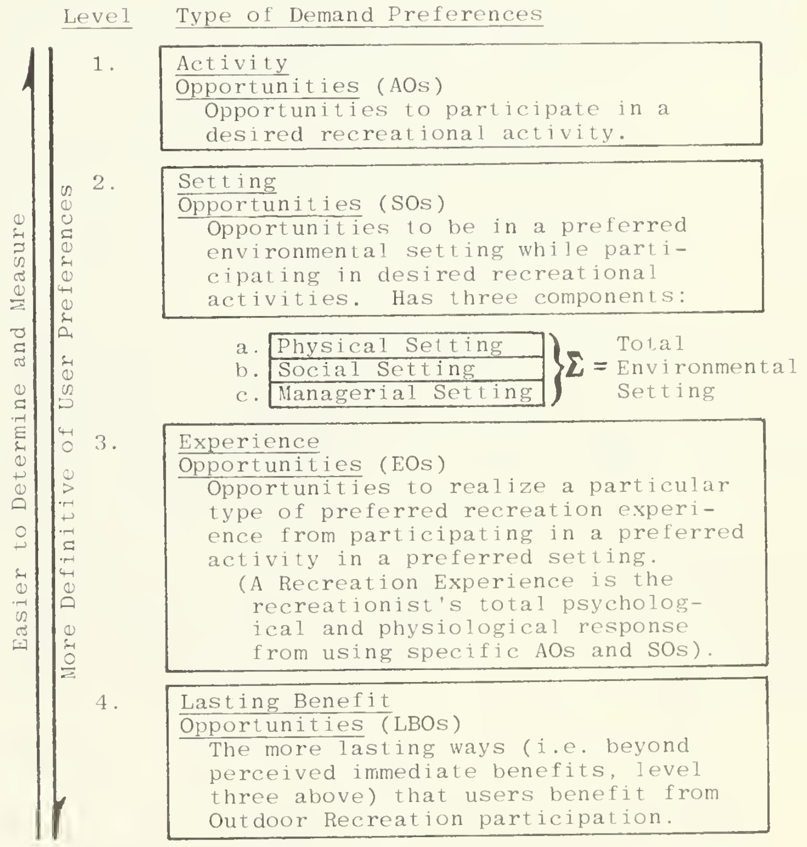
Conceptual Framework

Recognition of the multi-dimensional nature of user preferences for Recreation Opportunities has resulted in formulation of a *Recreation Demand Hierarchy* concept consisting of four components. It is called a hierarchy because users are less aware of some types of opportunities than they are of others; at the same time, those types of opportunities of which they are least aware are most indicative of the reasons why they engage in certain types of recreation.

The following graphically illustrates this concept more specifically. Users are most aware of their demands for Activity Opportunities and least aware of their demands for Long-term Benefits. Consequently, this makes it more difficult to measure user demands for level four opportunities (see diagram to the right) and easiest to measure user demands for level one opportunities. Nevertheless, the more difficult to measure demands most accurately explain why users engage in certain types of recreation use.

This diagram illustrates that although the concept of Activity Opportunities is viable, by itself it is inadequate for evaluating on-the-ground resources and recreation features as well as user demands and preferences for them. Recreation Opportunities are therefore defined by these four component opportunities. Note however that explicit consideration of level four Lasting Benefit Opportunities is not presently an integral part of the ROS system, given the current state of the art. In its practical implementation, these opportunities will be operationally incorporated once they are more thoroughly understood.

RECREATION DEMAND HIERARCHY


Easier to Determine and Measure
More Definitive of User Preferences

Level — Type of Demand Preferences

1. Activity Opportunities (AOs)
   Opportunities to participate in a desired recreational activity.

2. Setting Opportunities (SOs)
   Opportunities to be in a preferred environmental setting while participating in desired recreational activities. Has three components:
   a. Physical Setting
   b. Social Setting
   c. Managerial Setting
   Σ = Total Environmental Setting

3. Experience Opportunities (EOs)
   Opportunities to realize a particular type of preferred recreation experience from participating in a preferred activity in a preferred setting.
   (A Recreation Experience is the recreationist's total psychological and physiological response from using specific AOs and SOs).

4. Lasting Benefit Opportunities (LBOs)
   The more lasting ways (i.e. beyond perceived immediate benefits, level three above) that users benefit from Outdoor Recreation participation.

(Taken in part from "Interim Guidelines for Outdoor Recreation Resource Management Planning." Rocky Mountain Forest and Range Experiment Station. May 1979.)

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[1] Driver, B.L. et al. "Interim Guidelines for Outdoor Recreation Resource Management Planning." Rocky Mountain Forest an Range Experiment Station. May 1979.

Notice that there is a direct realtionship between level two and level three preferences. User preferences for EOs (level three) do not occur in a vacuum, but they are derived from participation in various AOs (level one) and associated SOs (level two). Within the same type of setting, EOs remain constant (in addition, EOs also remain relatively constant across all AOs within each given SO). Therefore, a Recreation Opportunity is defined as the opportunity to engage in a particular recreation activity (AO), within a particular environmental setting (SO), to realize particular psychological outcomes (or immediate benefits) that define a satisfactory and predictable recreation experience (EO). Realization of Recreation Opportunities (ROs) over time produces long-term Benefit Opportunities (LBOs)(level four).

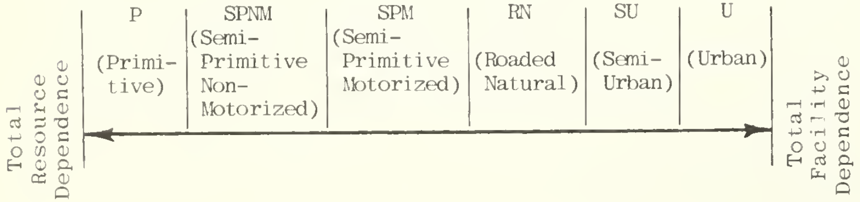
By defining specific physical, social, and managerial settings, we determine the total environmental setting (i.e. SOs) to facilitate Experience Opportunity (EO) identification and also provide a means for the manager to clearly differentiate between the same Activity Opportunities (AOs) that occur in different environments, or SOs.

The concept of a Recreation Demand Hierarchy makes possible the utilization of a second concept, the *Recreation Opportunity Spectrum (ROS)*. All landscapes can be classified according to variations in the three major attributes of setting (level two above). These settings and associated Activity Opportunities determine potentials for providing particular types of Recreation Opportunities (i.e. supply). Likewise, user preferences for these settings and associated Activity Opportunities can also be determined (i.e. demand).

These variations in environmental setting have been arrayed on a spectrum from total resource dependence to total facility dependence, and six specific RO classes have been identified at various points between. All land areas fall into one of these six ROS classes, and all users exhibit preferences for Recreation Opportunities in one or more of these ROS classes.

The following diagram illustrates the concept of the *Recreation Opportunity Spectrum (ROS)*:

RECREATION OPPORTUNITY SPECTRUM (ROS)


P
(Primitive)
SPNM
(Semi-Primitive Non-Motorized)
SPM
(Semi-Primitive Motorized)
RN
(Roaded Natural)
SU
(Semi-Urban)
U
(Urban)
Total Resource Dependence
Total Facility Dependence

While Setting Opportunities (SOs) and Experience Opportunities (EOs) are relatively fixed in each ROS class, a variety of Activity Opportunities (AOs) can occur in each.

Remember that Recreation opportunities are defined in both concepts that are presented above as those combinations of AOs, SOs, and EOs that are available to the user on-the-ground (i.e. Supply) and/or that are preferred by users (i.e. demand). Also remember that due to the generally direct relationship between SOs and EOs, identification of general SOs automatically defines general EOs.

As a practical matter, on-the-ground RO capabilities and existing ROs can be inventoried and classified according to relatively well-defined criteria; those for the Setting Opportunity (SO) component are set forth in Table 1; those for the Activity Opportunity (AO) component are set forth in Section II of this Handbook and Classification Manual. In terms of user preferences, we can also inventory and classify preferences for AOs and SOs as well as for EOs.

To allow necessary latitude for professional judgement the ROS has been purposely designed without excessive detail. Rather broad guidelines are set forth in a flexible framework to guide thinking. This permits modifications to allow for regional variations in settings, resource attributes, and recreation features. This flexibility further allows for modification of the ROS system over time as it is tested and implemented by various planners and managers.

The ROS system makes possible the description of Recreation Opportunities in terms comparable with other resources so that recreation can receive equal consideration with other natural resource values within an overall multiple-use management context. This is done through inventorying both ROs supplied and ROs demanded in similar terms, and in terms which can be directly related to total resource management.

This system incorporates the most recent scientific behavioral knowledge within a framework that provides data outputs that are readily understandable not only by recreation professionals but also by managers and, of equal importance, by various users and interested publics.

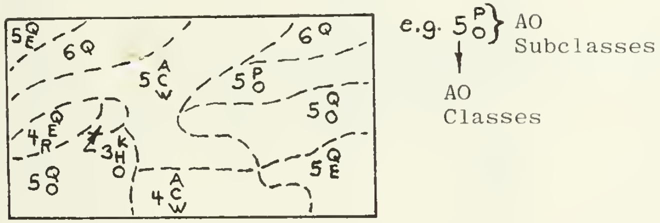
Application

Using both the Activity Opportunity (AO) and Setting Opportunity (SO) classification systems concurrently and applying them to both on-the-ground resources (supply) and to user preferences (demand), we can describe any differences between the two (need). These inventories, evaluations, and analyses consider both qualitative and quantitative differences. Ultimately through suitability analyses (Figures 1 and 2) planners and managers can reconcile these differences by either maintaining or changing the environmental setting, resource attributes, and/or recreation features to provide Recreation Opportunities that are desired and expected.

A. To Determine Supply

1. Depict Activity Opportunity (AO) Capabilities by Delineating and Classifying ELUs.

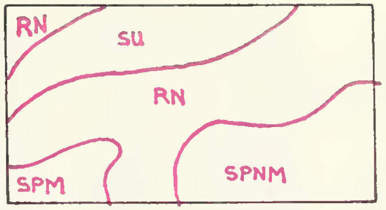
Begin using a topographic map, and delineate Ecological Land Units (ELUs) according to variations in both physical resource attributes (largely topography, vegetation, soils, water, and climate) and specific recreation features (such as wildlife populations, recreational fisheries, cultural resources, interesting or collectable rocks, fossils, etc.).



Each area delineated by a dotted line defines a separate ELU having a relatively uniform capability to generate recreation use and also having a separate ELU capacity factor (see following section on SO classification procedures).

2. Delineate Setting Opportunity (SO) Capability Classes

On the same topographic base map depicting various roads and trails, etc., using the SO classification criteria in Table 1, delineate SO classes according to the existing physical setting. Classes (or zones) are initially delineated based upon the "remoteness" criteria . Subsequent application of the remaining three physical criteria (i.e. size, irreversible evidence of man, and renewable resource modification) might change this initial delineation (SO capability classification is completed on a portion of the foldout map in Appendix A-2; an accompanying photograph with corresponding SO and AO overlays is also included).

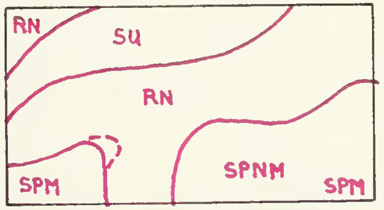


P = Primitive
SPNM = Semi Primitive Non-Motorized
SPM = Semi Primitive Motorized
RN = Roaded Natural
SU = Semi Urban
U = Urban

Each of the areas labeled separately has a different physical setting, and is capable of consistently producing a similar "bundle" or general grouping of psychological outcomes (i.e. EOs). Also defined are rather broad capacity ranges for each SO class (see Table 1 and the following section on Setting Opportunity classification procedures).

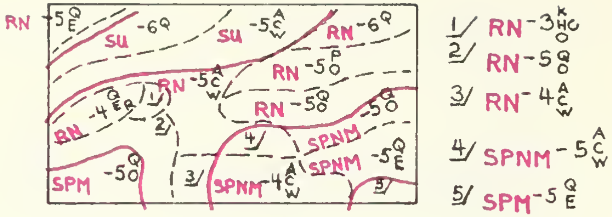
3. Delineate Existing Setting Opportunity (SO) Classes

Again using the same topographic base map, and the social and managerial attributes classification criteria in Table 1, as well as the physical attributes criteria, delineate SO classes according to the most facility-dependent factors (see ROS schematic above). These classes will differ from the classes outlined in Step No. 2 above only to the extent that the existing social and/or managerial settings are more facility-dependent than the existing physical setting (see also following section on SO classification procedures).



4. Define Existing Recreation Opportunities (ROs)

Combining the overlays produced in Steps No. 1 and No. 3 above on one overlay automatically defines Recreation Opportunities (ROs); these defined by the intersection of either solid or dashed lines. This depicts a composite of existing SOs (and therefore the EOs available) and associated AOs on each area.



Only by defining the types of SOs on a given unit of land can an explicit differentiation be made between the various AOs available. For example the label RN-5 ACW indicates that an area can generate a moderately low amount of activity associated with recreational fisheries on a river access unit having significant populations of wetland wildlife. But those same Activity Opportunities (Subclasses A,C, & W) are also available within Semi Urban (SU) and Semi Primitive Non-Motorized (SPNM) Setting Opportunity Classes (in all three cases, the dominant associated Activity Opportunities include fishing, river running, wildlife viewing hiking, nature study and interpretation, picnicking, and camping).

B. To Determine Demand

1. Gather Total Use Data

Data should be gathered by dominant activities or, most commonly and more accurately, by groupings of associated activities wherever possible. Disagregate visitor use data by the above-delineated SO classes or zones to the extent possible to form preference indicators for various SOs. More specific disagregation by existing ROs will help determine user preferences for various ROs.

In other words, Activity Opportunity (AO) preferences and participation must be disagregated into existing Setting Opportunity (SO) classes. This allows making a fundamental distinction between any given activity as it is engaged in across different settings. This also helps to focus attention on the user's utilization of all components of the RO and not just on the activity itself.

These estimates should be made for past as well as for current use to allow for making some type of use projections.

2. Supplement Existing Use Data with User Surveys and On-Site Interviews

Supplemental user preference data is compiled by conducting user surveys. User preferences are sampled for Activity Opportunities, Setting Opportunities (i.e. physical, social, and managerial settings), and Experience Opportunities. When feasible, prefernences are also tied to specific resource attributes and recreation features.

Such supplemental data gathering is not advisable except in areas having high resource values and high potential conflicts. Additional guidance is forthcoming to help make this determination.

C. To Determine Alternative Management Options to Satisfy Resulting User Needs

Evaluate the Suitability of Managing these Land Units for Alternative Recreation Opportunities

Consider altering the physical, social, and/or managerial settings to produce alternative Setting Opportunity Classes; keep in mind the limitations inherent in the SO capability classification (Step No. A-2 above). This exercise should not be done in a vacuum from the Demand data that is compiled for each planning effort (see Parts B-1 and B-2 above).

In addition, consider initiating various management actions to either increase the availability of various Activity Opportunities or to change the composition or capability of their associated resource attributes and/or recreation features. Data collected in Demand studies and from recreation participation inventories should also be used in this analysis.

Setting Opportunity Classification Procedures and Guidelines

Begin with the same topographic base map used in the ELU RCC. Supplementary data to aid in the classification process includes transportation/road inventories, records of various resource and facility developments and projects, and aerial photos. Inventory data on recreation participation should also be assembled.

Begin delineating SO capability classes at the most facility-dependent (i.e. Urban) end of the ROS. It works best to begin at the planning area's major highways and work outwards. In applying the "remoteness" criteria, note the significance that distance and/or equivalent topographic or vegetative screening plays in delineating and classifying SO classes.

The important thing to keep in mind is that the concept of SO class delineation is not as well-defined on-the-ground as the ELU capability classification is. The classification matrix in Table 1 is not to serve as a rigid framework from

ROS SETTING OPPORTUNITY CLASSIFICATION MATRIX

Attributes of Setting in Σ = Total Environmental Setting	CRITERION NAME	SETTING OPPORTUNITY CLASS CRITERIA					
		Required Setting Opportunity Standards by					
		P (Primitive)	SPNM (Semi-Prim. Non-Motor)	SPM (Semi-Prim. Motorized)	RN (Roaded-Natural)	SU (Semi-Urban)	U (Urban)
Physical	Remotenass (sights and sounds of man–miles or equivalent screening: ± depending on landscapes) (see also road defs. on continuation sheet)	≥ 3 miles from any constructed road & ½ mile from any primitive road or way. No noticeable visual nor audio intrusions in fg. or mg. (incl. primitive roads or ways that are closed to public use).	≥ ½ mile from any road. No noticeable visual nor audio intrusions in fg. or mg. (incl. primitive roads or ways that are closed to public use). *	≥ ½ mile from any secondary or improved road. No noticeable visual nor audio intrusions in fg. or mg from other than motorized recreation use. *	≥ ¼ mile from any primary road. No visual intrusions in the fg.	≥ 0 miles from any road. (i.e., all roads are acceptable.)	≥ 0 miles from any road. (i.e., all roads are acceptable).
	Size of Area (acres)	≥ 5000	≥ 2500	≥2500	≥ 1	≥ 1	≥ 1
	Irreversible Evidence of Man (mines, reservoirs, roads, etc. which cannot be feasibly obliterated.)	up to 1% of area	up to 2% of area	up to 5% of area	up to 25% of area	up to 50% of area	up to 100% of area
	Man-caused Noise, Water, and Air Pollution (i.e., non-recreational; those factors caused by recreation users and considered under the Social and Managerial settings below)	Any air, water, and/or noise pollution present will have significant impact on quality of Experience Opportunities for this Class.	Any air, water, and/or noise pollution present will have significant impact on quality of Experience Opportunities for this Class.	Air, water and/or noise pollution are low in intensity and frequency.	Air, water and/or noise pollution are moderate in intensity or common in frequency of occurrence.	Air, water and/or noise pollution are high in intensity or frequency.	Air, water and/or noise pollution are intense or frequent. They are readily discernible and would cause extreme conflicts with desires for Experience Opportunities for the P to RN Classes.
	Renewable Resource Modification (as in the above, delineate areas of homogeneity)	Essentially unmodified. Limited and subtle improvement of fish/wildlife populations.	Predominantly unmodified. Lim. & subtl. improvmt. of fish/wildlife pops.	Predominantly unmodified. Occasional improvement of fish/wildlife pops.	Predominately natural environment; includes rural and pastoral landscapes. Modifications evident but harmonious with the natural environment. Substantial improvement of fish/wildlife pops.	Substantially modified. Modifications to enhance rec. activities and yet to maintain soil and vegetative cover. Large-scale improvement of fish/wildlife pops,	Substantially urbanized but background may have natural elements. Modifications to enhance rec. activities. Vegetation: manicured & exotic. Soil. hard-surfaced and/or terraced.
	- Degree of resource modification permissable,						
	Subtle (e.g., seeding, selective cutting, grazing, old burns, etc.)	up to 30%	up to 70%	up to 70%	up to 70%	up to 100%	up to 100%
	Obvious (e.g., chaining, clear cut, new burns/watershed projects, etc.	up to 1%	up to 2%	up to 3%	up to 25%	up to 50%	up to 100%
	Facility/Site Management (Physical Features)	Only those essential for resource protection and visitor safety. Const. of on-site materials. No facil. for user comfort or convenience.	For protection of resources & user safety. Const. of on-site materials where possible.	Primarily for protect. of resources & user safety, but these may also enhance rec. oppor. Const. of on-site materials where possible. Motorized use here.	Facilities provided for: -user convenience. -safety. -resource protection. -enhancing rec. oppor. Sometimes group facil. Motorized use prov. for in facility design.	Considerable number for use by large nos. of users. Often facil. for spec. activities. Facil provide for intensified motorized use and parking.	Considerable number for use and convenience of large nos. of people. Includes electrical hookups & contemp. sanl. services. Facil. highly intensified. Motor use and parking avail. w/forms of mass transport. often avail. through site.
	Level of development and actions permissable,						
	1-Harden site	- Subtle drainage practc. to control erosion.		- Revegetate. - Thin ground cover & over-story.	- Install durable natural surfaces. - Fertilization. - Irrigation.	- Install durable non-native or synthetic surfaces.	
	2-Channel Use	- Primitive trails for resource prot. only. - Brochures.	- Const. trails & barriers of on-site materials for resource protection & safety.	- Const. primitive roads and trails. very lim. - Primitive conforming barriers and bridges only as necessary.	- Native landscape veg. - Limited exotics, but must be conforming. - Rustic barriers, bridges, etc. - Includes all but primary & secondary roads.	- Native or exotic landscape species. - Rustic/modern barriers, roads, bridges, etc.	- All of these facilities may be modern/urban. - Can use all techniques to construct,
	3-Develop facilities	- Log bridges - No site development at all.	- Some wooden directional signing - Prim. sanl. facil. for res. prot. & visitor safety. - Very limited site devel.	- Back-country campsite w/o site development except for primitive sanl. facil. - 3 sites/acre.	- Rustic site development for low-mod. user densities. - 3-5 sites/acre ±. - used &/or unused areas. - Designate use areas. - Limited concessionaire facil. - Provide activity-oriented facil. - Provide Iterp. facil.	- Facil. to enhance rec. oppor.; rustic/modern. - Moderate-high densities - 8-12 sites/acre +. - Provide concessionaire facilities. - Visitor center develop.	- > 15 sites/acre +.
Social	User Evidence (Evaluate in terms of presence of trails, litter, no. campsites & fire rings, man-caused noise, and other evidence)	Group spacing informal and dispersed to minimize contact frequency. Low concentration and minimal evidence.	Allows formalized group spacing to disperse use. Evidence of others is observable.	Allows formalized group spacing to disperse use. Evidence of others is observable.	Moderate evidence of sights and sounds of man & these usually harmonious w/ natural environment.	Sights and sounds of man are readily evident.	Sights and sounds of man are predominant.
	- Relative Quantity	- Very little evidence.	- Few signs.	- Some.	- Common.	- Much.	- Abundant.
	Frequency of Encounters (Spatial relation of individuals & groups in terms of no. of encounters with others) (Consider: no. parties encountered, no. contacts, no. others seen, etc.) (Consider also: density, volume, and separation)	1-2 parties/day in the back-country and at commonly used sites.	5 parties/day on the back-country trail-head fringe.	Low to moderate contact frequency.	Frequency of contact is: - Mod: in developed sites and on roads and trails. - Low to Mod.: away from developed sites and facilities.	Frequency of contact is: - Mod. to High: in developed sites, on roads & trails & water surf. - Mod.: away from developed sites.	Large numbers of users on-site and in nearby areas.
	User Density (see also continuation sheet) (PAOTs persons-at-one-time/acre)	Low: .002 - High: .025	Low: .008 - High: .083	Low: .008 - High: .083	Low: .083 - High: 2.500	Low: .830 - High: 7.500	Low 1.667 - High 15.000
Managerial	Managerial Constraints and Noticeability	Free from evidence of man-induced restrictions & controls. Motorized use not permitted.	On-site restrictions and controls present but subtle. Motorized use not permitted.	On-site restrictions and controls present but subtle.	On-site controls are noticeable and offer a sense of security, but they harmonize with the natural environment.	Controls obvious and numerous, largely in harmony with the man-made environment.	Controls obvious and numerous, but largely man-made.
	- Direct Regulation of Use (behavioral regulation; user choice restricted);						
	1-Increase enforcement	- Increase surveillance of area.		- Impose fines for violation.			
	2-Zone use				- Zone incompatible uses spatially & seasonally in a rustic manner.	- Zone incompatible uses spatially & seasonally.	
	3-Restrict use intensity	- Limit party size. - Limit duration of site occupancy.	- Assign group use areas. - Limit overnight use areas to developed sites. - Rotate use areas.			Reservations can be required.	
	4-Restrict activities	- Restrict location of campfires. - Restrict hunting/fishing			- Restrict general firearms use.		
	- Indirect Regulation of Use (behavioral modification: user free to choose):						
	1-Inform users	- Identify range of rec. opportunities in area - Educate users to ecological concepts.		- Advertise over/under used areas.	- Identify specific area attributes.		
	2-Set eligibility requirements				- Entrance fees can be charged.		

* Generally 1 - 1½ mi. in rolling to open terrain.

NOTE: Other names have also been used for some of the ROS classes. These include Roaded Natural (also called Rural and Roaded Natural Appearing), Semi-Urban (also called Semi-Rural and Rural), and Urban (also called Modern Urban).

Table 1

CONTINUATION SHEET FOR SETTING OPPORTUNITY CLASSIFICATION MATRIX

Road Definitions

(For use of the Remoteness criteria under the Physical Setting):

1. Primitive: any way, rut, or track which is not graded nor drained, and has never been constructed.
2. Constructed: graded or bulldozed, at least once, partially or totally.
3. Improved: regularly graded.
4. Secondary: regularly graded and graveled and/or paved but with less than 250 ADT ± (i.e., State and/or Federal Secondary).
5. Primary: surfaced and heavily traveled, greater than or equal to 250 ADT ± (i.e., Federal Primary and/or Interstate).

User Densities

-Average Density-
(For an entire area considered in total)

ROS Class	PAOT/A		Acres/Person		Sq. Ft./Person	
	Low	High	Low	High	Low	High
P	.002	.025	500	40	21,780,000	1,742,400
SPNM	.008	.083	125	12	5,445,000	522,720
SPM	.008	.083	125	12	5,445,000	522,720
RN	.083	2.500	12	0.4	522,720	17,424
SU	.830	7.500	1.2	0.13	52,272	5,663
U	1.677	15.000	0.6	0.07	26,136	3,049

-Campground Density-
(For site development or an outdoor facility)

ROS Class	PAOT/A	
	Low	High
P, SPNM	4	12
SPM	4	16
RN	8	16
SU	13	25
U	26	75

-If Everyone Uses the Campground-
(Acres necessary to accommodate intensive use in each ROS class)

ROS Class	Site Density (PAOT for developed sites)	Acres Necessary Per One-Acre Site to Achieve Average Density	
		Low	High
P, SPNM	4	2,000	160
	12	6,000	480
SPM	4	500	48
	16	2,000	192
RN	8	96	3
	16	192	6
SU	13	16	1.7
	25	30	3.3
U	26	15.6	1.7
	75	45	6

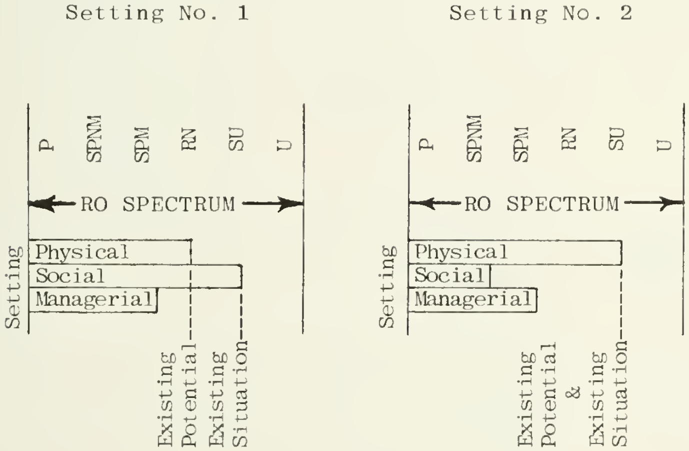
Table 1 (cont.)

which there is no departure. Instead, these criteria form general guidelines, and like the ELU RCC, what is most important is the relative ranking of the various land areas within any planning area.

Remember that the physical attributes in Table 1 constitute the total input into SO capability classification of existing SO potentials. SO class capabilities are delineated without further reference to the social and managerial criteria listed further down on the left-hand side of Table 1. One overlay is prepared to show these existing SO potentials.

Prepare a second overlay to depict the Existing SOs using the social and managerial attribute classification criteria in Table 1, as well as the physical attribute criteria. Except where social and managerial factors rank areas in more facility-dependent ROS classes than the physical criteria (i.e. SO capability), both overlays will be the same. The existing situation for areas that would appear to classify out more towards the resource-dependent end of the spectrum, when the social and managerial criteria are applied, should still be classified the same as for SO capabilities because the physical criteria would then be most limiting.

The following diagram helps explain the interrelationship of these two SO classifications:


Setting No. 1

Setting No. 2

In setting No. 1 the physical setting has been modified to the RN Class, but the amount of use (social) is at the SU level. Therefore, social attributes will determine existing SOs, but the capability of the area to provide SOs is limited only to the RN Class. The managerial setting is not a determining factor.

In Setting No. 2 the physical setting has been modified to the SU Class, more facility-dependent than either existing use (social) or current management (managerial). Therefore, physical attributes determine both capability and the existing situation.

The reason for preparing two separate Setting Opportunity classifications is to differentiate between those attributes of setting which can be changed through management. For all practical purposes, it is not possible to change the physical setting through management to a more resource-dependent class on the spectrum (e.g. from RN to SPNM). On the other hand, it is relatively easy to change the existing social and managerial settings in either direction on the spectrum (i.e. toward greater resource dependency as well as as towards greater facility dependency). Because landscape alterations of the physical setting are very difficult to reverse, these attributes are more fixed in the user's mind as determinants of their desired and expected outcomes. For these reasons, physical attributes of setting alone determine SO capability, the "bottom line" beyond which management cannot go in attempting to provide alternative SOs.

Therefore, the on-the-ground Setting Opportunities available to the user may differ from the land's capability to provide them, but only by being more facility-dependent that the SO capabilities. As we have seen above, the reason is because that attribute of setting which is most facility-dependent actually determines what SOs are available. If either social or managerial attributes are more towards the facility-dependent end of the spectrum, than are the physical attributes, they will determine existing SOs being provided. If they are equally or less facility-dependent than the physical attributes, the physical attributes of setting will determine both SO capabilities and existing SOs.

Capacity Determination

User densities and capacity ranges are inherently determined by the SO class criteria (see Table 1, Social Attributes of Setting). These criteria broadly define capacity ranges for each class, but other conditions including vegetation, soils, and facilities or site management help to narrow these capacity ranges. The affect of these factors in helping to screen the sound and visibility of users and in determing the relative useability or durability of an area needs to be considered.

These conditions vary largely by the Ecological Land Units (ELUs) that are used to identify Activity Opportunities, or aggregations thereof. When combined, these physical and managerial conditions produce an ELU capacity factor that is applied to the broader SO capacity ranges to eventually obtain user capacities. In the present stage of the ROS system's development, actual numerical quantifiers have not been derived for consistent and reliable application. The narrowing of the more broadly-applied SO capacity ranges must be made on the basis of professional judgement. As the ROS is improved through field testing and actual application, numerical factors should be developed to make this process more objective.

Generally, the resulting capacities will be somewhere below the mid-point of the broad ROS ranges because the factors (especially facilities and site management) determining SO class are usually discontinuous throughout the planning unit. Where those factors ranking an area towards the facility-dependent end of the spectrum are not uniformly distributed throughout a given ROS class, their absence tends to sharply limit that class-area's user capacity.

Overall Relationship to Land Use Planning

The overall objective in land use allocation planning is to provide Recreation Opportunities that are both quantified and qualified in the form of a managerially realistic combination of Activity Opportunities (AOs), Setting Opportunities (SOs), and Experience Opportunities (EOs). Figure 1 schematically outlines all Recreation Opportunity Spectrum (ROS) components in a planning framework of supply and demand. This graphic illustrates the practical application of the ROS "Conceptual Framework" outlined earlier in this section of the Appendix.

Steps outlined in the foregoing Application section can also be related to ROS components in Figure 1 to help gain an overall persective:

Application Steps (pp. IV/B-3&4)		ROS Components (Figure 1)
A-1:	Depict AO Capabilities	Part II-A&B
A-2:	Delineate SO Capability Classes	Part I-A
A-3:	Delineate Existing SO Classes	Part I-A,B,&C
A-4:	Define Existing ROs	Parts I and II
B-1:	Gather Total Use Data	Part III-A,B,&C and Part IV-A&B
B-2:	Supplement Existing Use Data with User Surveys	Parts III and IV
C:	Evaluate Suitability	Part V

Part I of Figure 1 illustrates the procedural framework for Setting Opportunity classification of recreation supply. Graphic representation of the two separate SO evaluations helps illustrate the relationship of their component parts. Part II, identification of Activity Opportunity capabilities (i.e. existing potentials) is the focus of this ELU RCC handbook and classification manual (Existing Activity Opportunities differ from AO capabilities only to the extent that factors such as public access, market conditions, etc. render them unavailable to the user public).

Parts III and IV of Figure I illustrate how the ROS works in reverse, in terms of recreation demand. The foregoing "Application" section of this narrative briefly outlines how the ROS is applied to assess recreation demand. More detailed guidance on this process is yet being developed.

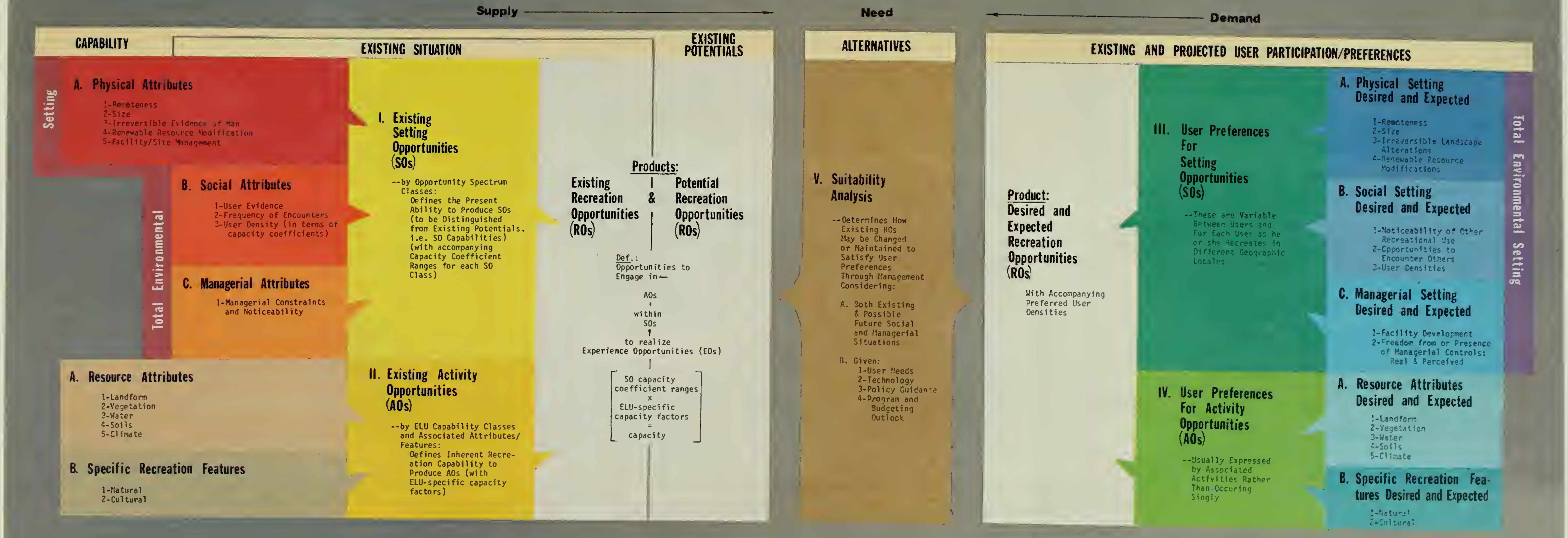
Synthesis of recreation supply and demand occurs through the Suitability Analysis process, Part V of the ROS. By comparing each with the other in a framework constrained by user needs, technology, policy guidance, and program and budgeting outlooks, a set of recommended Recreation Opportunity allocation alternatives are formulated. These are eventually integrated into a series of best-mix multiple use alternatives, and the selected alternative ultimately becomes the land use plan itself.

Figure 2 schematically illustrates ROS components, as they are depicted in Figure 1, in the overall context of Recreation Allocation Planning: Inventory, Evaluation, and Synthesis. The relationship of each ROS component to this process helps illustrate the information or data flow which occurs in allocation planning.

Both figures are included here to emphasize the importance of considering each of the ROS components at each step in the planning process. Not only in allocation planning, but in activity management planning, and in project planning as well, consistency with the Recreation Opportunities identified in the initial land allocation plan must be maintained. This requires a consistent reference to each component of the ROS if we are to arrive where we originally intended to.

In other words, land use allocation planning, activity or management planning, and project planning must each separately consider all the ROS variables: AOs, SOs, and EOs. Not only is this necessary to ensure that the original land use plan objectives are met, but it helps prevent the advancement of irrelevant program components.

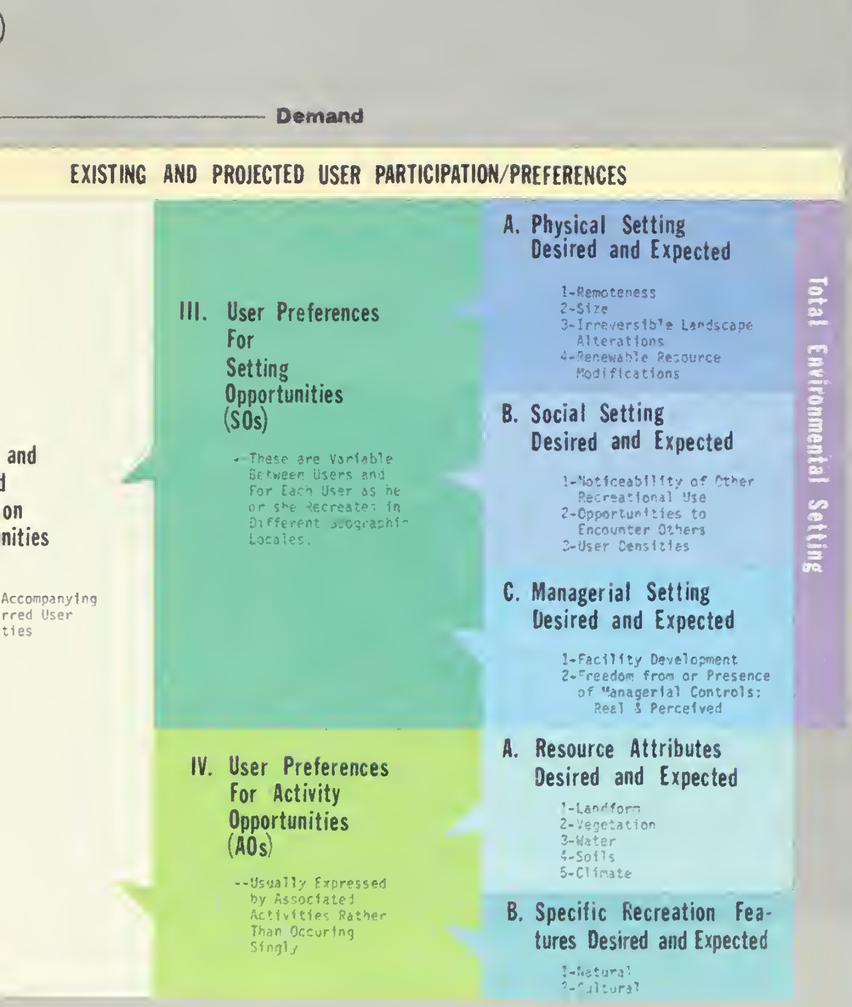
In completing suitability analyses, the best mix of AOs and SOs, and therefore EOs, must be determined in light of the most feasible combination of managerial inputs, user preferences, public demands and needs, and ultimately competing resource demands. What must be determined are the Recreation Opportunities that are to be provided on each separate land area within the planning unit. Questions to be answered in this process should include what type of Recreation Opportunities will be provided and where, when they will be needed, who will benefit, and what the relative costs are. Each of these questions should be answered as objectively as possible, including quantification to a degree which is consistent with relative resource values, needs, and management inputs required.


Supply
Need
Demand
CAPABILITY
EXISTING SITUATION
EXISTING POTENTIALS
ALTERNATIVES
EXISTING AND PROJECTED USER PARTICIPATION/PREFERENCES
Setting
Total Environmental
A. Physical Attributes
1-Remoteness
2-Size
3-Irreversible Evidence of Man
4-Renewable Resource Modification
5-Facility/Site Management
B. Social Attributes
1-User Evidence
2-Frequency of Encounters
3-User Density (in terms of capacity coefficients)
C. Managerial Attributes
1-Managerial Constraints and Noticeability
A. Resource Attributes
1-Landform
2-Vegetation
3-Water
4-Soils
5-Climate
B. Specific Recreation Features
1-Natural
2-Cultural
I. Existing Setting Opportunities (SOs)
--by Opportunity Spectrum Classes:
Defines the Present Ability to Produce SOs (to be Distinguished from Existing Potentials, i.e. SO Capabilities) (with accompanying Capacity Coefficient Ranges for each SO Class)
II. Existing Activity Opportunities (AOs)
--by ELU Capability Classes and Associated Attributes/Features:
Defines Inherent Recreation Capability to Produce AOs (with ELU-specific capacity factors)
Products:
Existing Recreation Opportunities (ROs)
&
Potential Recreation Opportunities (ROs)
Def.:
Opportunities to Engage in←
AOs
+
within
SOs
to realize
Experience Opportunities (EOs)
SO capacity coefficient ranges
x
ELU-specific capacity factors
=
capacity
V. Suitability Analysis
--Determines How Existing ROs May be Changed or Maintained to Satisfy User Preferences Through Management Considering:
A. Both Existing & Possible Future Social and Managerial Situations
B. Given:
1-User Needs
2-Technology
3-Policy Guidance
4-Program and Budgeting Outlook
Product:
Desired and Expected Recreation Opportunities (ROs)
With Accompanying Preferred User Densities
III. User Preferences For Setting Opportunities (SOs)
--These are Variable Between Users and For Each User as he or she Recreates in Different Geographic Locales.
IV. User Preferences For Activity Opportunities (AOs)
--Usually Expressed by Associated Activities Rather Than Occuring Singly
A. Physical Setting Desired and Expected
1-Remoteness
2-Size
3-Irreversible Landscape Alterations
4-Renewable Resource Modifications
B. Social Setting Desired and Expected
1-Noticeability of Other Recreational Use
2-Opportunities to Encounter Others
3-User Densities
C. Managerial Setting Desired and Expected
1-Facility Development
2-Freedom from or Presence of Managerial Controls: Real & Perceived
A. Resource Attributes Desired and Expected
1-Landform
2-Vegetation
3-Water
4-Soils
5-Climate
B. Specific Recreation Features Desired and Expected
1-Natural
2-Cultural
Total Environmental Setting

COMPONENTS OF THE RECREATION OPPORTUNITY SPECTRUM (ROS)

– prepared by Colorado State Office BLM

Figure 1



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EXISTING AND PROJECTED USER PARTICIPATION/PREFERENCES

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Accompanying
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III. User Preferences For Setting Opportunities (SOs)

--These are Variable Between Users and For Each User as he or she Recreates in Different Geographic Locales.

A. Physical Setting Desired and Expected

1-Remoteness
2-Size
3-Irreversible Landscape Alterations
4-Renewable Resource Modifications

B. Social Setting Desired and Expected

1-Noticeability of Other Recreational Use
2-Opportunities to Encounter Others
3-User Densities

C. Managerial Setting Desired and Expected

1-Facility Development
2-Freedom from or Presence of Managerial Controls: Real & Perceived

Total Environmental Setting

IV. User Preferences For Activity Opportunities (AOs)

--Usually Expressed by Associated Activities Rather Than Occuring Singly

A. Resource Attributes Desired and Expected

1-Landform
2-Vegetation
3-Water
4-Soils
5-Climate

B. Specific Recreation Features Desired and Expected

1-Natural
2-Cultural

— *prepared by Colorado State Office BLM*

RECREATION OPPORTUNITY ALLOCATION PLANNING PROCESS

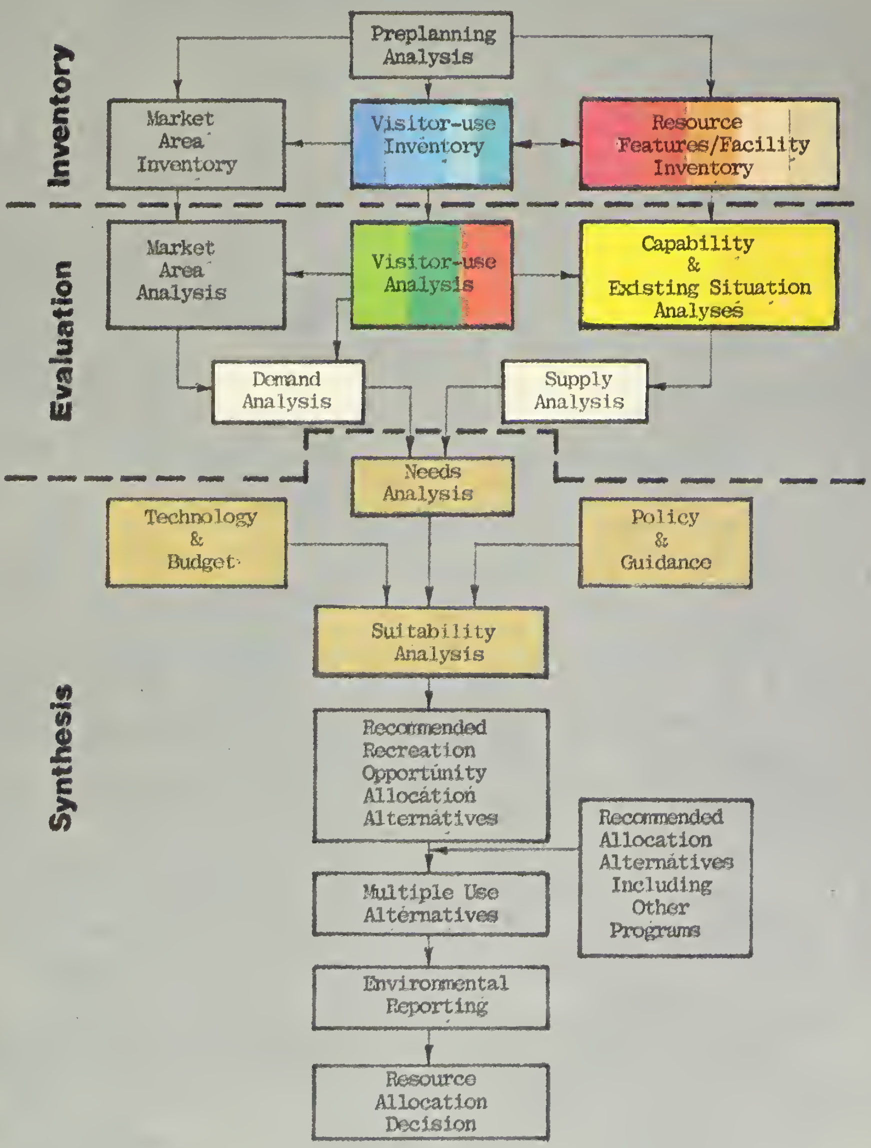

Figure 2

APPENDIX C

This portion of the Appendix is purely informational only. It contains sample portions of the interpretation charts for soil associations and for detailed soil surveys. These characteristics are especially significant for determination of Activity Opportunity capacity factors (see also Appendix B), especially in Activity Opportunity capability classes one thru three where intensive use capabilities are noteworthy.

Table of Characteristics for Soil Associations - Colorado State Key for County General Soil Maps* (continued) (FIRST I

		Estimated Properties						
Soil Association Number, Name, and Components	Extent (%)	Slope (%)	Bedrock (Inches)	Permeability	Depth to Seasonal High Watertable (Inches)	Flood Hazard	Shrink-Swell Potential	Frost Action Potential
14. Keith-Tripp								
Keith	30	0-3	> 60	Moderate	> 60	None	Low	Low
Tripp	25	0-3	> 60	Moderate	> 60	None	Low	Low
Minor Soils	45							
15. Rago-Platner								
Rago	50	0-3	> 60	Moderately slow	> 60	None	Moderate	Low
Platner	35	0-9	> 60	Moderately slow	> 60	None	Moderate	Low
Minor Soils	15							
16. Haxtun-Dailey-Julesburg								
Haxtun	50	0-3	> 60	Moderate	> 60	None	Low	Low
Dailey	25	0-9	> 60	Rapid	> 60	None	Low	Low
Julesburg	25	0-9	> 60	Moderately rapid	> 60	None	Low	Low
17. Eckley-Chappell								
Eckley	40	9-25	> 60	Moderate	> 60	None	Low	Low
Chappell	40	9-25	> 60	Moderately rapid	> 60	None	Low	Low
Minor Soils	20							
18. Fluvaquents-Fluvents								
Fluvaquents	70	0-3	> 40	---	0-10	Common	---	---
Fluvents	20	0-3	> 40	---	> 40	Common	---	---
Minor Soils	10							
19. Nunn-Haverson								
Nunn	50	0-3	> 60	Moderately slow	> 60	None	Moderate	Low
Haverson	20	0-3	> 60	Moderate	> 60	Common	Low	Low
Minor Soils	30							
20. Ascalon-Platner-Stoneham								
Ascalon	50	0-9	> 60	Moderate	> 60	None	Low	Low
Platner	30	0-9	> 60	Moderately slow	> 60	None	Moderate	Low
Stoneham	15	3-15	> 60	Moderate	> 60	None	Low	Low
Minor Soils	5							
21. Vona-Olney-Dwyer								
Vona	50	3-9	> 60	Moderately rapid	> 60	None	Low	Low
Olney	30	3-9	> 60	Moderate	> 60	None	Low	Low
Dwyer	10	3-25	> 60	Very rapid	> 60	None	Low	Low
Minor Soils	10							
22. Heldt-Limon-Ordway								
Heldt	55	0-3	> 60	Slow	> 60	Rare	High	Low
Limon	25	0-3	> 60	Slow	> 60	Rare	High	Low
Ordway	20	0-9	20-40	Slow	> 60	None	High	Low
23. Nunn-Fort Collins								
Nunn	50	0-3	> 60	Moderately slow	> 60	None	Moderate	Low
Fort Collins	30	0-3	> 60	Moderate	> 60	None	Low	Low
Minor Soils	20							
24. Truckton-Bresser-Blakeland								
Truckton	50	0-9	> 60	Moderately rapid	> 60	None	Low	Low
Bresser	25	0-9	> 60	Moderate	> 60	None	Low	Low
Blakeland	20	0-9	> 60	Rapid	> 60	None	Low	Low
Minor Soils	5							
25. Bankard-Wann								
Bankard	45	0-3	> 60	Rapid	> 60	Common	Low	Low
Wann	40	0-3	> 60	Moderately rapid	20-30	Common	Low	Moderate
Minor Soils	15							

Degree & Kind of Limitation for --			Suitability as a Source of --			
Septic Tank Filter-Fields	Sewage Lagoons	Dwellings W/O Basements	Road Fill	Sand 17/	Gravel 18/	Location of Soil Association by Counties
Moderate 2/ Moderate 2/	Moderate 2/ Moderate 2/	Moderate 14/ Moderate 14/	Fair 14/ Fair 14/	Unsuited Unsuited	Unsuited Unsuited	Sedgwick.
Moderate 2/ Moderate 2/	Slight Moderate 8/	Moderate 13/ Moderate 13/	Poor 14/ Fair 14/	Unsuited Poor 16/	Unsuited Unsuited	Logan, Phillips, Sedgwick, Washington, Yuma.
Moderate 2/ Slight 7/ Slight	Moderate 2/ Severe 3/ Severe 3/	Slight Slight Slight	Fair 14/ Good Fair 14/	Poor 16/ Fair 16/ Fair 16/	Unsuited Unsuited Unsuited	Logan, Phillips, Sedgwick, Washington, Yuma.
Moderate 7/, 8/ Moderate 7/, 8/	Severe 8/ Severe 8/	Moderate 8/ Moderate 8/	Good Good	Good Good	Good Good	Logan, Sedgwick.
Severe 4/, 5/ Severe 5/	Severe 4/, 5/ Severe 5/	Severe 4/, 5/ Severe 5/	--- ---	--- ---	--- ---	Boulder, Delta, Gunnison, Logan, Montrose, Morgan, Sedgwick, Weld.
Severe 1/ Severe 5/	Slight Severe 3/	Moderate 13/ Severe 5/	Poor 14/ Poor 16/	Unsuited Unsuited	Unsuited Unsuited	Las Animas, Lincoln, Logan, Pueblo, Weld.
Slight Moderate 2/ Moderate 2/	Moderate 8/ Moderate 8/ Severe 8/	Slight Slight Moderate 8/	Fair 14/ Fair 14/ Fair 14/	Poor 16/ Poor 16/ Unsuited	Unsuited Unsuited Unsuited	Cheyenne, Elbert, El Paso, Huerfano, Kit Carson, Logan, Morgan, Washington, Weld, Yuma.
Slight Slight Moderate 7/, 8/	Severe 3/ Moderate 2/, 8/ Severe 3/, 8/	Slight Slight Moderate 8/	Fair 14/ Fair 14/ Good	Poor 16/ Poor 16/ Good	Unsuited Unsuited Unsuited	Cheyenne, Crowley, El Paso, Huerfano, Kiowa, Las Animas, Lincoln, Logan, Morgan, Otero, Pueblo, Washington, Weld.
Severe 1/ Severe 1/ Severe 6/	Slight Slight Severe 6/	Severe 5/, 13/, 14/ Severe 5/, 13/, 14/ Severe 13/, 14/	Poor 13/ Poor 13/ Poor 6/, 13/	Unsuited Unsuited Unsuited	Unsuited Unsuited Unsuited	Adams, Cheyenne, Crowley, Elbert, El Paso, Kiowa, Lincoln, Morgan, Weld.
Severe 1/ Moderate 2/	Slight Slight	Moderate 13/ Moderate 14/	Poor 14/ Fair 14/	Unsuited Unsuited	Unsuited Unsuited	Adams, Arapahoe, Boulder, Custer, Douglas, Elbert, El Paso, Fremont, Huerfano, Jefferson, Kit Carson, Larimer, Lincoln, Logan, Morgan, Pueblo, Washington, Weld.
Slight Slight Slight	Severe 3/ Moderate 2/, 8/ Severe 3/	Slight Slight Slight	Good Fair 14/ Good	Poor 16/ Poor 16/ Good	Unsuited Poor 16/ Unsuited	Arapahoe, Elbert, El Paso.
Severe 5/, 7/ Severe 4/, 5/	Severe 3/ Severe 4/, 5/	Severe 5/ Severe 4/, 5/	Good Poor 12/	Good Poor 16/	Unsuited Unsuited	Adams, Larimer, Morgan, Washington, Weld.

TABLE G.--RECREATIONAL DEVELOPMENT

["Shrink-swell" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe"]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Aaberg:				
[1]Ar:				
Aaberg part	Severe: too clayey.	Severe: too clayey.	Severe: too clayey, slope.	Severe: too clayey.
Bullshaan part	Moderate: percs slowly, slope.	Moderate: slope.	Severe: slope.	Slight.
Ayn-ston:				
Ay	Severe: slope.	Severe: slope.	Severe: small stones, slope.	Moderate: small stones, slope.
Badland: Ba.				
Bangston:				
Bg	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy, slope.	Moderate: too sandy.
Blackwell:				
Bk	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Blevinton:				
Bl	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Boettcher:				
[1]Bo:				
Boettcher part	Moderate: too clayey.	Moderate: too clayey.	Severe: slope.	Moderate: too clayey.
Bundyman part	Moderate: percs slowly, too clayey.	Moderate: too clayey.	Moderate: percs slowly, too clayey, slope.	Moderate: too clayey.
Bosler:				
Bs	Slight	Slight	Moderate: slope.	Slight.
Bowen:				
Bw	Severe: slope.	Severe: slope.	Severe: small stones, slope.	Severe: slope.

TABLE L.--SANITARY FACILITIES

["Shrink-swell" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms used to rate soils. Absence of an entry means soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Aaberg: [1]Ab: Aaberg part	Severe: percs slowly, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Moderate: slope.	Poor: too clayey.
Barishman part	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey.
Agneston: Ag	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: slope.	Poor: small stones, slope.
Badland: Ba.					
Bangston: Bg	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
Blackwell: Bk	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Poor: wetness.
Blevinton: Bn	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope.
Boettcher: [1]Bo: Boettcher part	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Slight	Poor: too clayey.
Bundyman part	Severe: percs slowly, depth to rock.	Moderate: slope.	Severe: too clayey, depth to rock.	Slight	Fair: too clayey.
Bosler: Bs	Slight	Severe: seepage.	Severe: seepage.	Slight	Fair: thin layer.

TABLE 8.--BUILDING SITE DEVELOPMENT

["Shrink-swell" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Aaberg:					
[1]Ab:					
Aaberg part	Severe: too clayey, depth to rock.	Severe: shrink-swell.	Severe: shrink-swell, depth to rock.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.
Barishman part	Severe: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell.
Agneston:					
Ag	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Badland: Ba.					
Bangston:					
Bg	Severe: too sandy.	Slight	Slight	Moderate: slope.	Slight.
Blackwell:					
Bk	Severe: wetness, floods.	Severe: wetness, floods, frost action.	Severe: wetness, floods, frost action.	Severe: wetness, floods, frost action.	Severe: wetness, floods, frost action.
Blevinton:					
Bn	Moderate: slope.	Severe: frost action.	Severe: frost action.	Severe: frost action, slope.	Severe: frost action.
Boettcher:					
[1]Bo:					
Boettcher part	Severe: depth to rock, too clayey.	Severe: shrink-swell.	Severe: depth to rock, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.
Bundyman part	Severe: too clayey, depth to rock.	Severe: shrink-swell.	Severe: shrink-swell, depth to rock.	Severe: shrink-swell.	Severe: shrink-swell.
Bosler:					
Bs	Severe: cutbanks cave, small stones.	Slight	Moderate: shrink-swell.	Slight	Moderate: shrink-swell, low strength, frost action.

TABLE N.--CONSTRUCTION MATERIALS

["Shrink-swell" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," and "unsuited." Absence of an entry means soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Aaberg: [1]Ab:				
Aaberg part	Poor: shrink-swell, low strength, thin layer.	Unsuited	Unsuited	Poor: too clayey.
Barishman part	Poor: shrink-swell.	Unsuited	Unsuited	Fair: thin layer, slope.
Agneston: Ag	Poor: thin layer.	Unsuited	Unsuited	Poor: small stones, slope.
Badland: Ba.				
Bangston: Bg	Good	Fair	Unsuited	Poor: too sandy.
Blackwell: Bk	Poor: wetness, frost action.	Poor	Unsuited	Poor: wetness.
Blevinton: Bn	Poor: frost action.	Unsuited	Unsuited	Fair: slope.
Boettcher: [1]Bo:				
Boettcher part	Poor: shrink-swell, thin layer.	Unsuited	Unsuited	Poor: too clayey.
Bundyman part	Poor: shrink-swell, thin layer, low strength.	Unsuited	Unsuited	Poor: too clayey.
Bosler: Bs	Good	Good	Good	Fair: too clayey.

APPENDIX D

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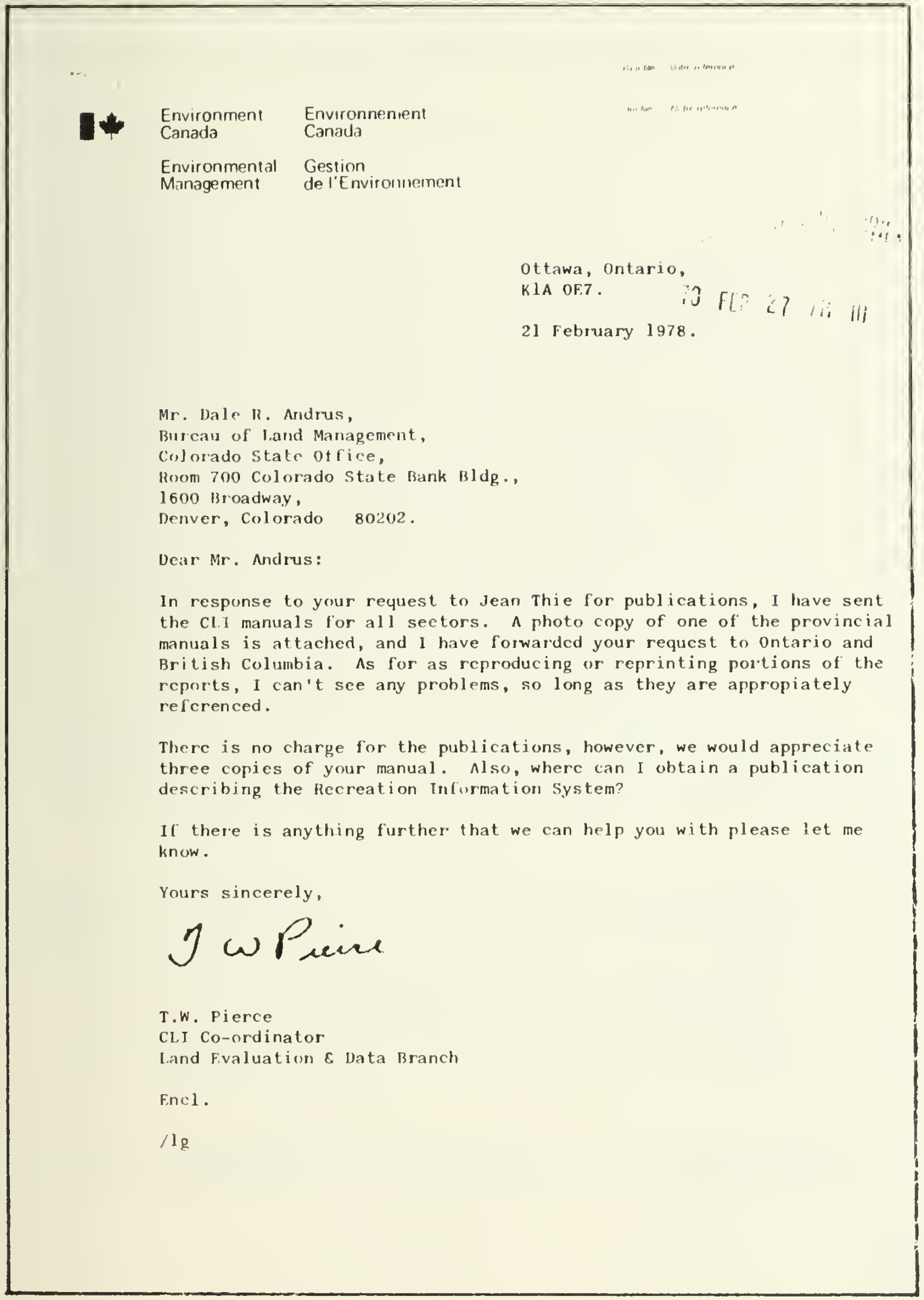


Environment Canada
Environnement Canada

Environmental Management
Gestion de l'Environnement

Ottawa, Ontario,
K1A 0E7.

FEB 27

21 February 1978.

Mr. Dale R. Andrus,
Bureau of Land Management,
Colorado State Office,
Room 700 Colorado State Bank Bldg.,
1600 Broadway,
Denver, Colorado 80202.

Dear Mr. Andrus:

In response to your request to Jean Thie for publications, I have sent the CLI manuals for all sectors. A photo copy of one of the provincial manuals is attached, and I have forwarded your request to Ontario and British Columbia. As for as reproducing or reprinting portions of the reports, I can't see any problems, so long as they are appropiately referenced.

There is no charge for the publications, however, we would appreciate three copies of your manual. Also, where can I obtain a publication describing the Recreation Information System?

If there is anything further that we can help you with please let me know.

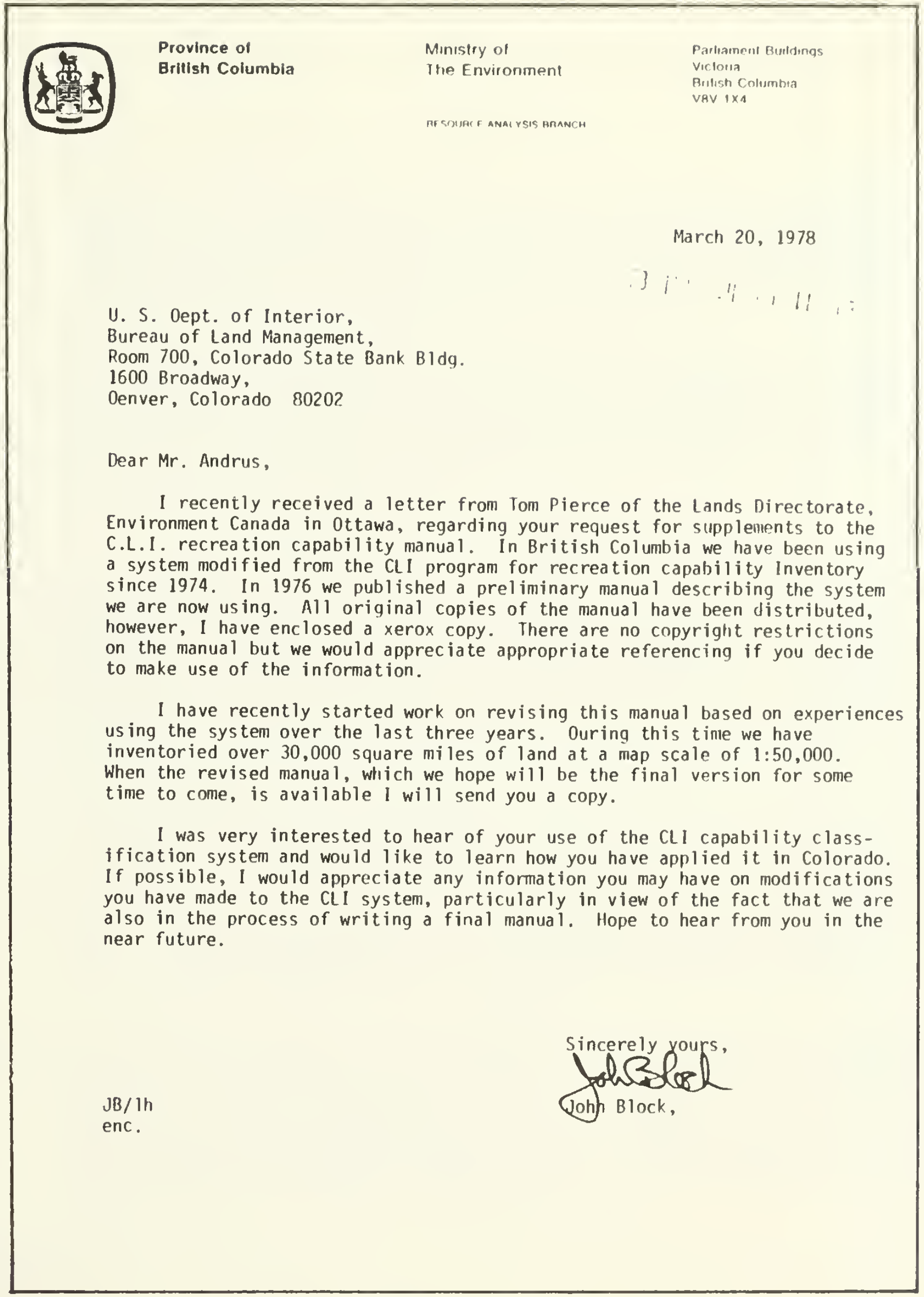
Yours sincerely,

T W Pierce

T.W. Pierce
CLI Co-ordinator
Land Evaluation & Data Branch

Encl.

/lg



Province of
British Columbia

Ministry of
The Environment

RESOURCE ANALYSIS BRANCH

Parliament Buildings
Victoria
British Columbia
V8V 1X4

March 20, 1978

U. S. Dept. of Interior,
Bureau of Land Management,
Room 700, Colorado State Bank Bldg.
1600 Broadway,
Denver, Colorado 80202

Dear Mr. Andrus,

I recently received a letter from Tom Pierce of the Lands Directorate, Environment Canada in Ottawa, regarding your request for supplements to the C.L.I. recreation capability manual. In British Columbia we have been using a system modified from the CLI program for recreation capability Inventory since 1974. In 1976 we published a preliminary manual describing the system we are now using. All original copies of the manual have been distributed, however, I have enclosed a xerox copy. There are no copyright restrictions on the manual but we would appreciate appropriate referencing if you decide to make use of the information.

I have recently started work on revising this manual based on experiences using the system over the last three years. During this time we have inventoried over 30,000 square miles of land at a map scale of 1:50,000. When the revised manual, which we hope will be the final version for some time to come, is available I will send you a copy.

I was very interested to hear of your use of the CLI capability classification system and would like to learn how you have applied it in Colorado. If possible, I would appreciate any information you may have on modifications you have made to the CLI system, particularly in view of the fact that we are also in the process of writing a final manual. Hope to hear from you in the near future.

Sincerely yours,

John Block

John Block,

JB/lh
enc.

DEPARTMENT OF THE INTERIOR

Established in 1849, the Department of the Interior is concerned with the management, development, and conservation of the nation's water, wildlife, mineral, forest, and park and recreational resources. As the Nation's principal conservation agency, the Department has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

THE BUREAU OF LAND MANAGEMENT

The Bureau of Land Management was established within the Department of the Interior, on July 16, 1946. It became successor to both the General Land Office (founded in 1812) and the Grazing Service (founded in 1934). Responsibilities, functions, and personnel of both organizations were combined and transferred to the new Bureau.

Today, the Bureau administers one of the most complex land management programs of any agency within the Federal Government. It is the custodian of original patent and survey records for 30 of the 50 United States. It is the final authority on all survey matters involving land within, or once part of, the public domain. It administers the mineral leasing program on all lands under its jurisdiction, on the Outer Continental Shelf, on lands held by other Federal agencies, and on private lands whose mineral rights are reserved to the Federal Government.

It manages the recreational resources of the public lands and is responsible for the protection and development of cultural resources on the public lands. It manages wildlife habitat on public land under its jurisdiction and is responsible for the protection, management, and control of wild horses on the public lands. It manages timber resources on two million acres of prime Douglas fir forest lands in western Oregon and on 23 million acres of other commercial forest land in other public land States.

It is also responsible for fire protection on BLM-administered public lands, disposal of land under its jurisdiction, land exchanges in support of the programs of other Federal agencies, and for the granting of rights-of-way across Federal lands for the construction of pipelines, electric transmission lines, and other public utilities.

THE BUREAU'S RECREATION PROGRAM IN COLORADO

Key elements of the Bureau of Land Management's Recreation Programs are the management of cultural resources, visual resources, natural history resources, wilderness, off-road vehicles, rivers and trails, and other recreation resources. The focus of these programs in Colorado is geared to priority resource management programs. For the past several years, these have included energy and minerals management, range management, and wilderness review itself.

Recreational use of the public lands is largely dispersed in nature. Intensive use areas are the exception rather than the rule. These support areas occur in close association with land areas exhibiting high capabilities to generate recreation use. In Colorado, these include lands adjacent to several rivers, some of which are being studied for inclusion in the National Wild and Scenic Rivers system, significant wildlife populations or fisheries, off-road vehicle use areas, outdoor study areas, and various day-use areas.

Primary recreation activities include river running, hunting and fishing, driving for fun, snowmobiling, four-wheel driving, trailbike use, collecting, hiking, and picnicking and camping. Other activities include the use and enjoyment of various human-interest and aesthetic features. This involves organized outdoor education activities as well as unorganized and informal study or appreciation of geologic, botanic, zoologic, hydrologic, and various cultural features.

Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225

Bureau of Land Management
Library
Denver Service Center

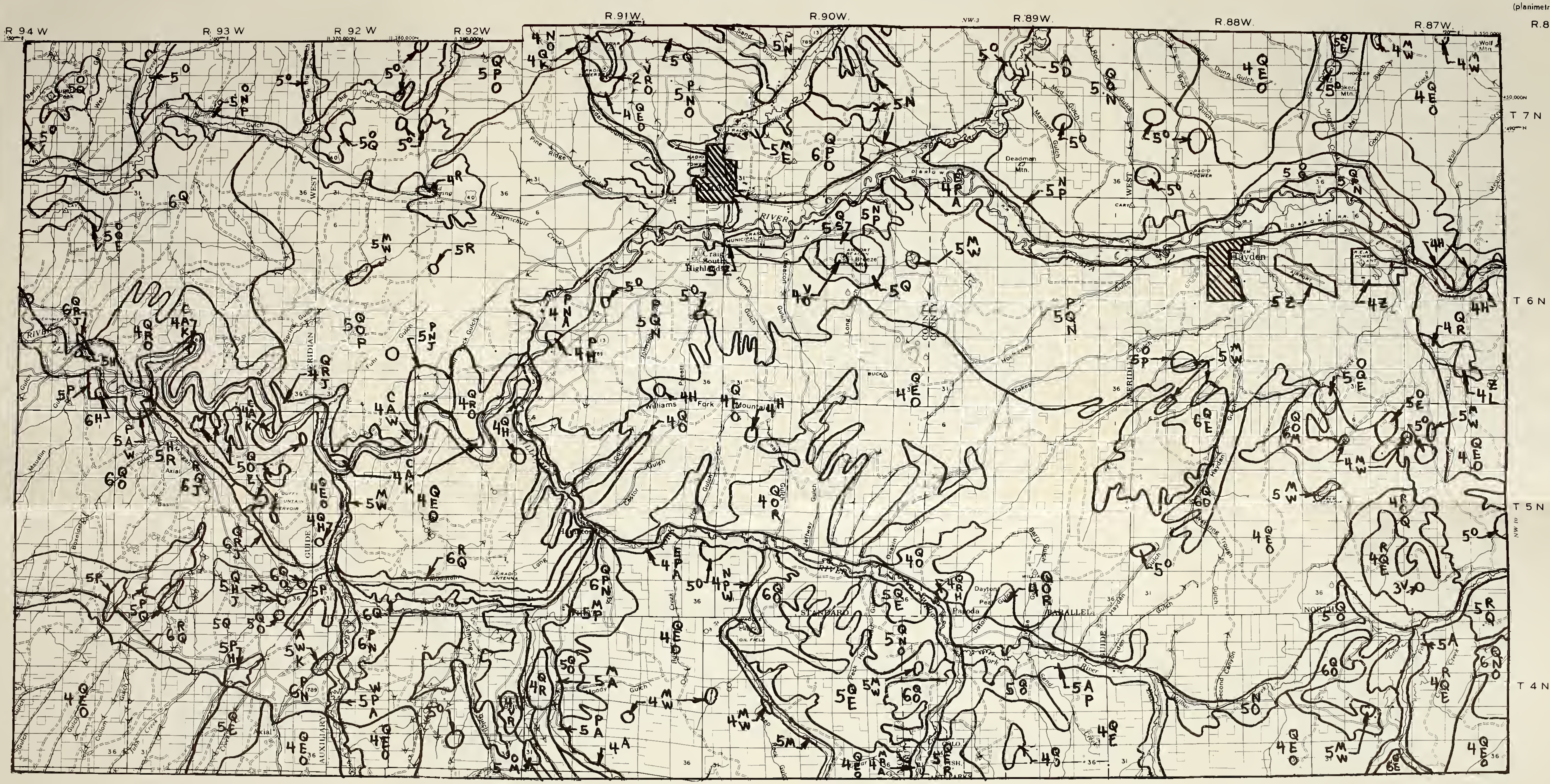
This publication was compiled by Don Bruns, Outdoor Recreation Planner for BLM's Colorado State Office, in consultation with various District and Resource Area Outdoor Recreation Planners in Colorado. Cooperation and assistance was obtained from Region II of the U.S. Forest Service, The Rocky Mountain Forest and Range Experiment Station, and the Department of Recreation Resources at Colorado State University.

MAYBELL
½ inch = 1 mile series
(planimetric)

Foldout Map for Appendix A-1

COLORADO

CRAIG
½ inch = 1 mile series
(planimetric)



Portions of the MAYBELL and LITTLE SNAKE PLANNING UNITS:

Recreation Capability Classification

→ Scale: $\frac{1}{2}''$ = 1 mile

LEGEND

Classes

Intensive Activities
- Class 1: Very High Capability
- Class 2: High Capability
- Class 3: Moderately High Capability

Dispersed Activities
- Class 4: Moderate Capability
- Class 5: Moderately Low Capability
- Class 6: Low Capability
- Class 7: Very Low Capability

▨ Urban Areas/Developed Subdivisions

Mapping Convention:

List up to three Subclasses in each Ecological Land Unit (ELU) in their order of dominance or significance.
e.g.

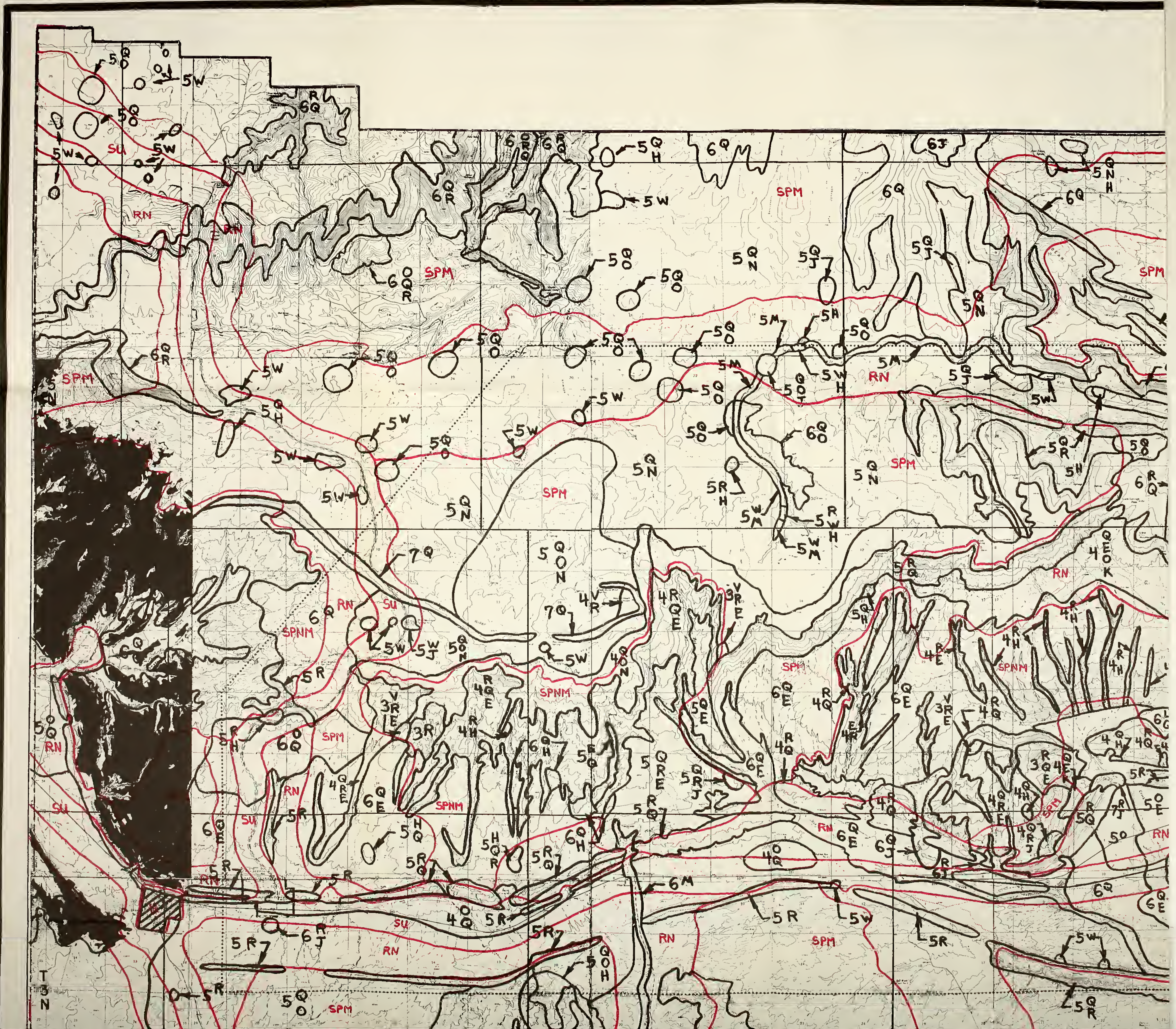
$3\,\overset{V}{\underset{E}{R}}$, $4\,\overset{C}{\underset{W}{A}}$, or $6\,\overset{Q}{O}$

Subclasses

A - Recreational Fisheries
B - Beaches
C - River Access Units
D - Units on Deeper Water
E - Vegetation
F - Waterfalls and Rapids
G - Glaciers or Permanent Snowfields
H - Cultural Resources: Historic and Archeologic
J - Collectable Rocks, Minerals, Etc.
K - Support Units
L - Landforms
M - Units on Small Surface Waters
N - Extensive Winter Upland Units
O - Upland Wildlife
P - Cultural Landscapes
Q - Topographic Configuration
R - Rock/Geologic Formations
S - Winter Upland Slopes
T - Thermal Springs
V - Vantage Points
W - Wetland Wildlife
X - Miscellaneous
Z - Man-made Features

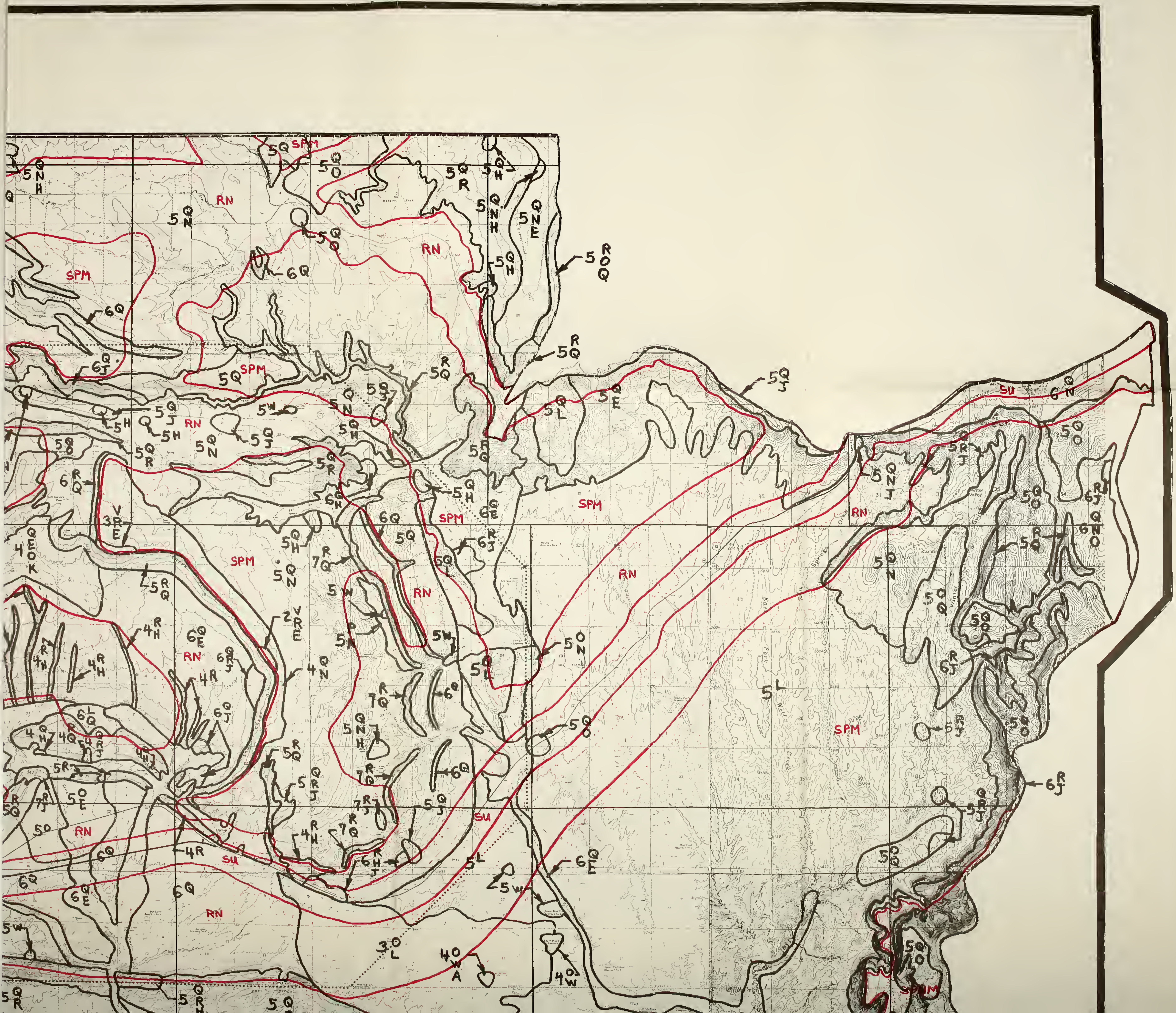
Foldout Map for Appendix A-2

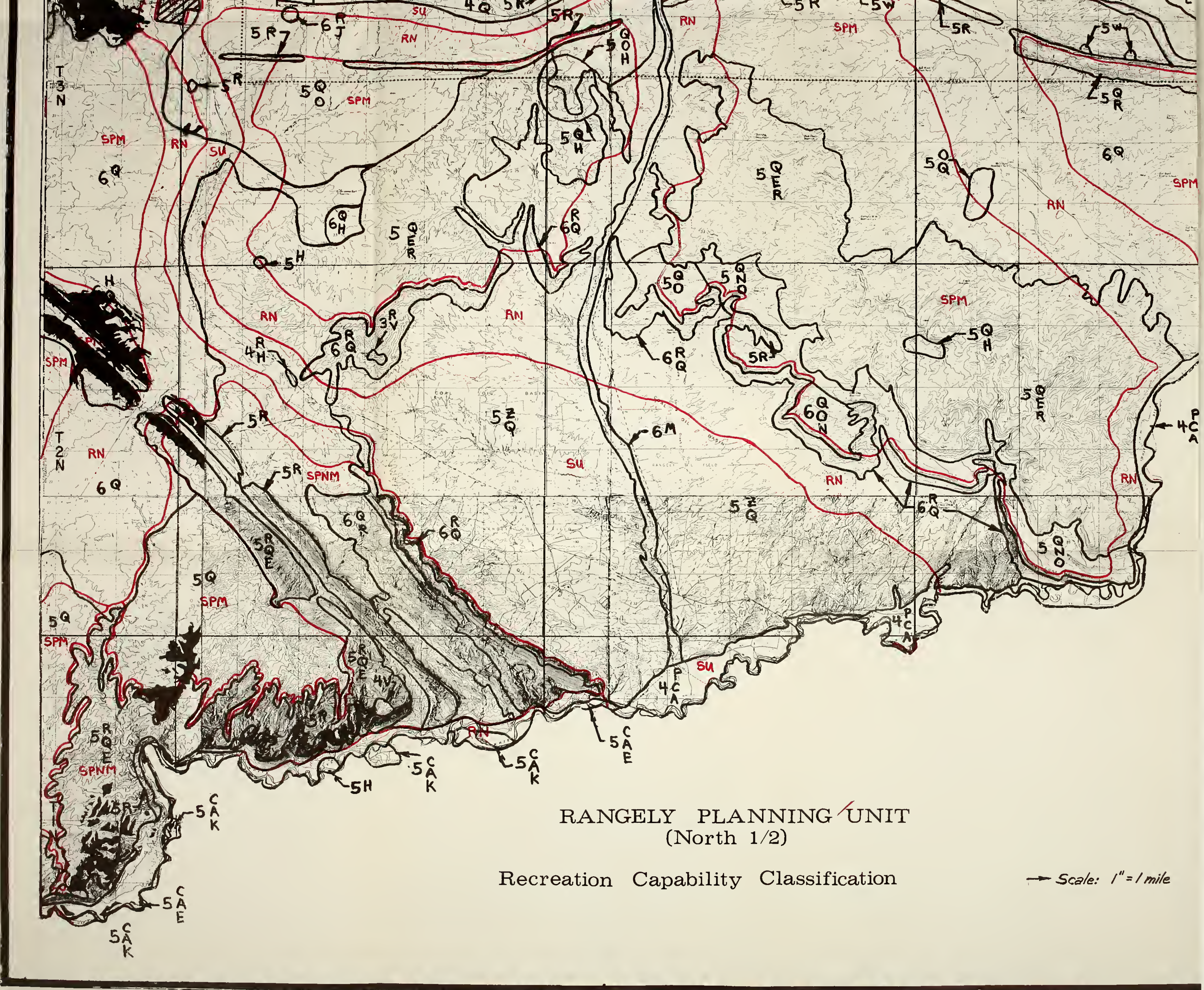
Part One of Two (joins part two at the right-hand margin)



Foldout Map for Appendix A-2

Part Two of Two (joins part one at the left-hand margin)

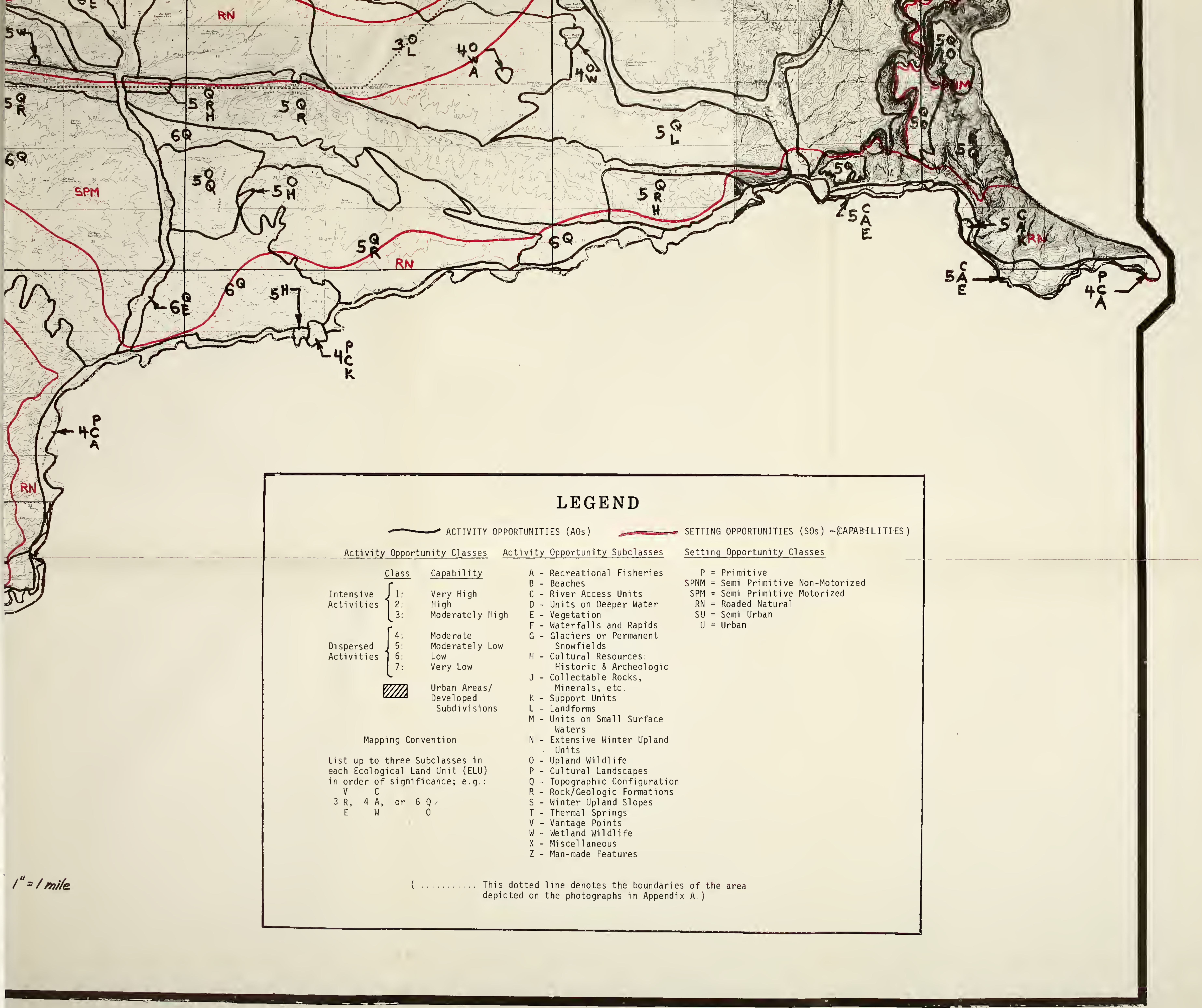




RANGELY PLANNING UNIT
(North 1/2)

Recreation Capability Classification

→ Scale: 1" = 1 mile



LEGEND

ACTIVITY OPPORTUNITIES (AOs)

SETTING OPPORTUNITIES (SOs) -(CAPABILITIES)

Activity Opportunity Classes

	Class	Capability
Intensive Activities	1:	Very High
	2:	High
	3:	Moderately High
Dispersed Activities	4:	Moderate
	5:	Moderately Low
	6:	Low
	7:	Very Low
	▨	Urban Areas/ Developed Subdivisions

Activity Opportunity Subclasses

A - Recreational Fisheries
B - Beaches
C - River Access Units
D - Units on Deeper Water
E - Vegetation
F - Waterfalls and Rapids
G - Glaciers or Permanent Snowfields
H - Cultural Resources: Historic & Archeologic
J - Collectable Rocks, Minerals, etc.
K - Support Units
L - Landforms
M - Units on Small Surface Waters
N - Extensive Winter Upland Units
O - Upland Wildlife
P - Cultural Landscapes
Q - Topographic Configuration
R - Rock/Geologic Formations
S - Winter Upland Slopes
T - Thermal Springs
V - Vantage Points
W - Wetland Wildlife
X - Miscellaneous
Z - Man-made Features

Setting Opportunity Classes

P = Primitive
SPNM = Semi Primitive Non-Motorized
SPM = Semi Primitive Motorized
RN = Roaded Natural
SU = Semi Urban
U = Urban

Mapping Convention

List up to three Subclasses in each Ecological Land Unit (ELU) in order of significance; e.g.:

$3\substack{V\\R\\E},\ 4\substack{C\\A\\W},$ or $6\substack{Q\\O}$

(........... This dotted line denotes the boundaries of the area depicted on the photographs in Appendix A.)